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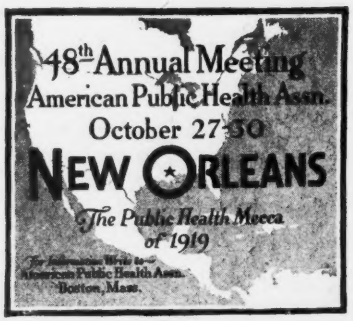

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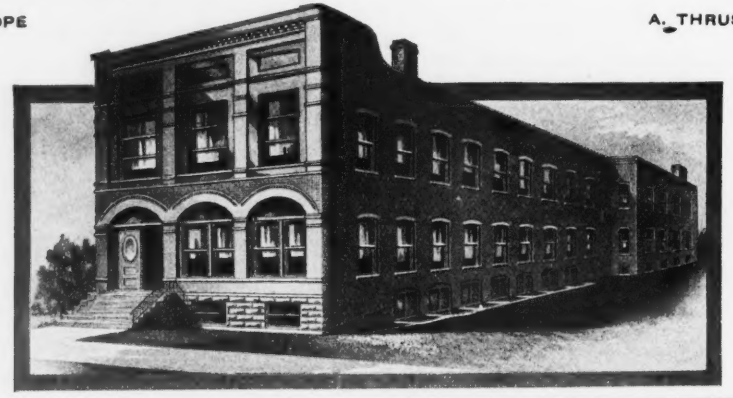

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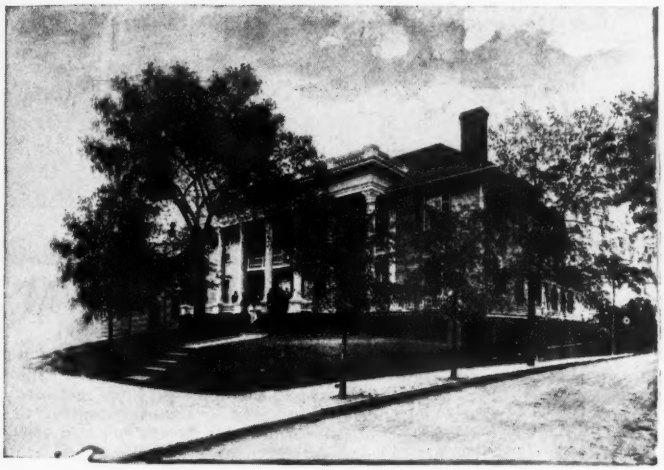

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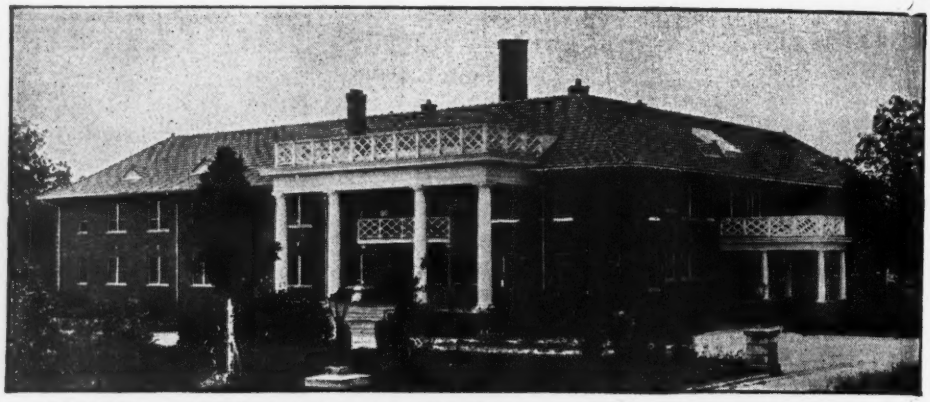

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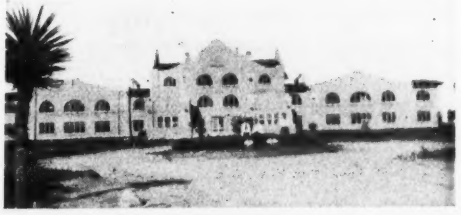

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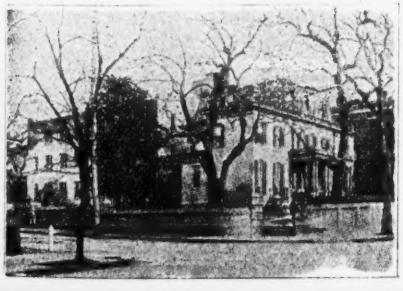

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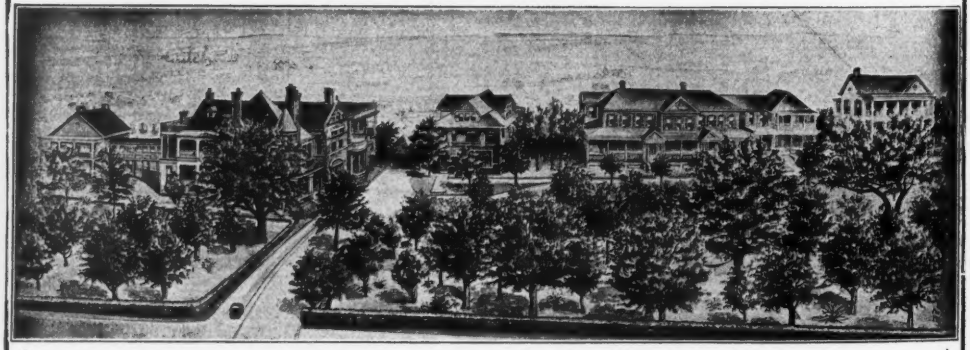

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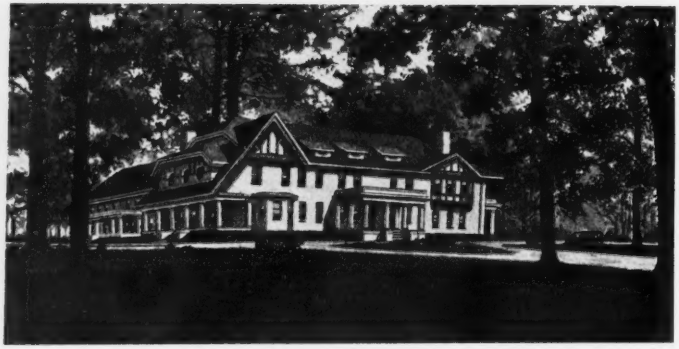

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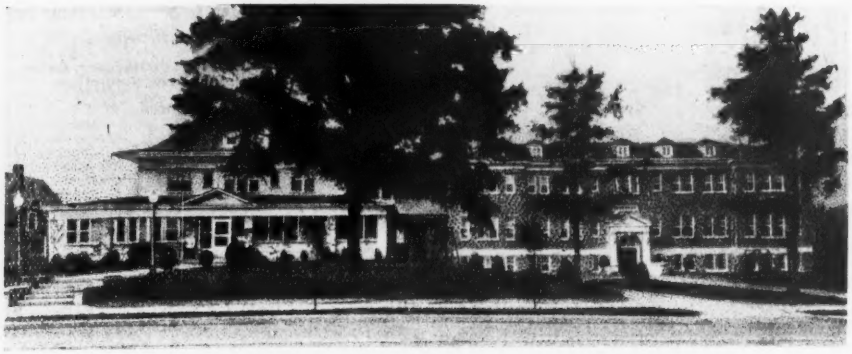

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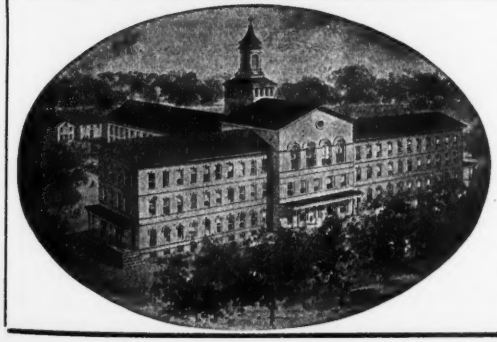

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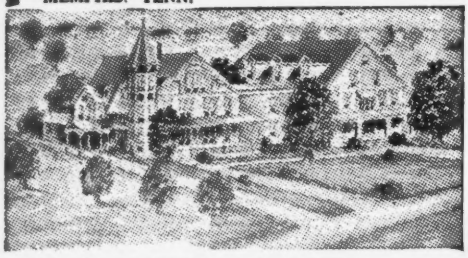

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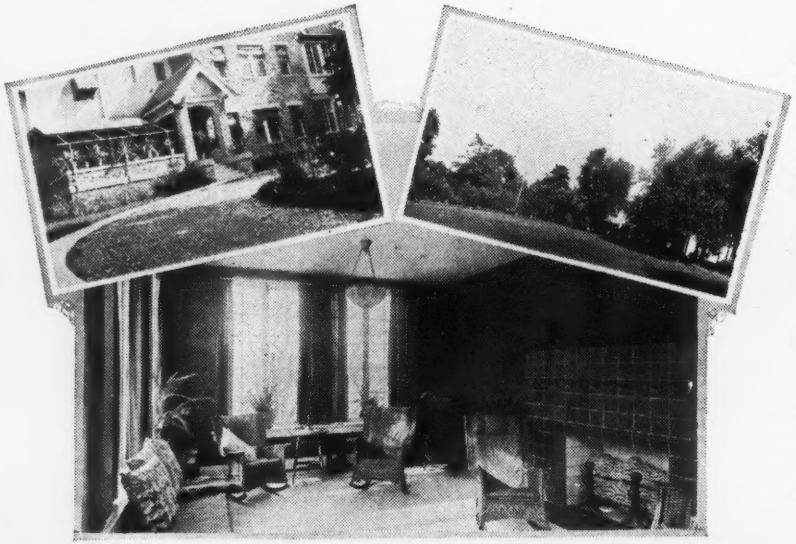

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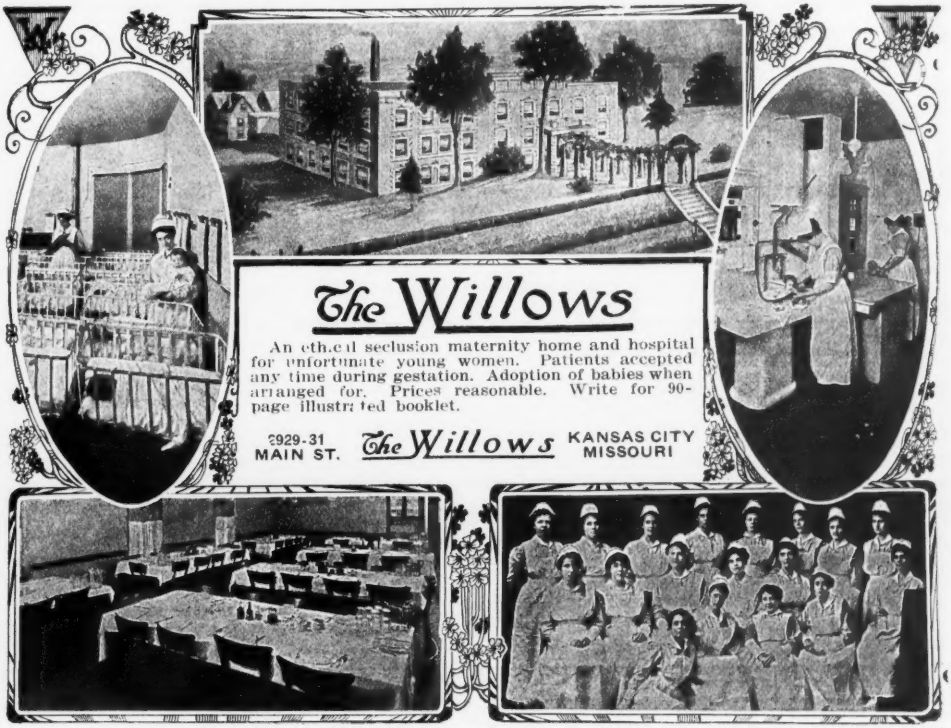
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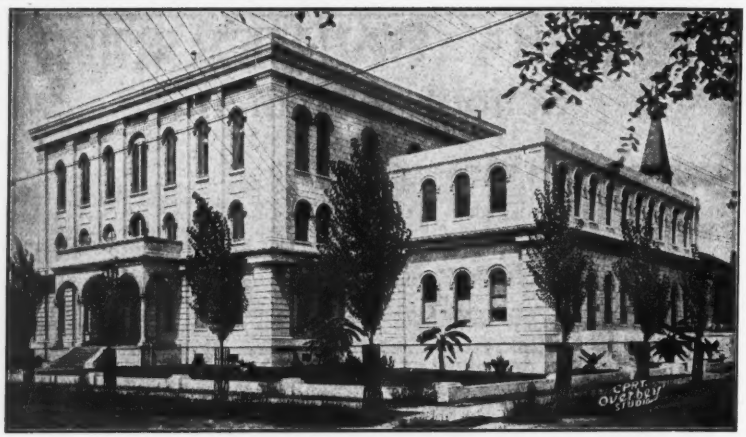

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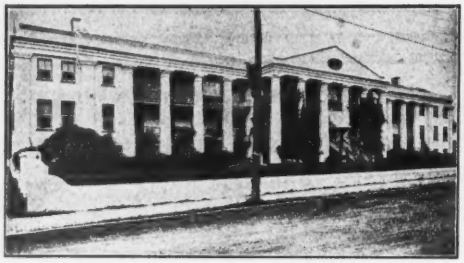

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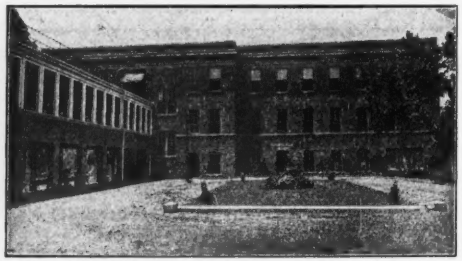

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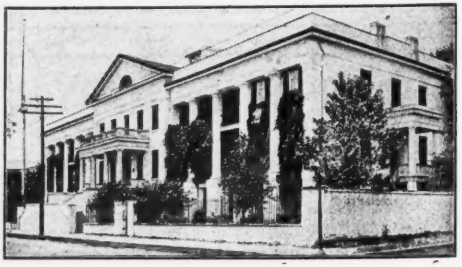

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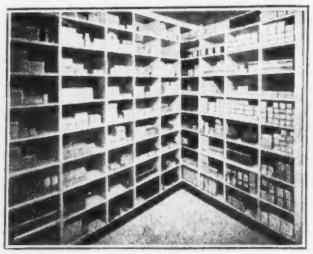

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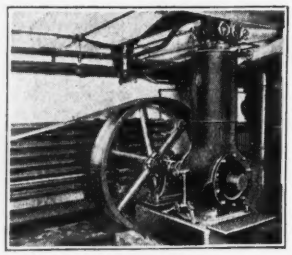

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INTERNAL DISEASES, PEDIATRICS, NEUROLOGY, DIAGNOSTIC METHODS, ETC.

THE NEUTROPHILIC INDEX AND THE ADMINISTRATION OF TUBERCULIN*

BY WALLACE J. DUREL, M.D.,
Professor of Phthisiology, Tulane Post-Graduate School of Medicine,
New Orleans, La.

From the early days of tuberculin therapy to the present, tuberculin has had many advocators as well as many who placed no faith in its value, and some who even condemned its administration as dangerous.

When looking over the literature on the subject, one is impressed with the different "viewpoints" taken by various writers, and he can but feel after a close reading and unbiased analysis that "tuberculin has a beneficial effect and is a valuable adjunct in the treatment of tuberculosis." Having used tuberculin for the past sixteen years, observing its effects on the tuberculous, the writer feels convinced that it is a potent stimulant to the resistant forces of the body, but that it requires a thorough knowledge of the pathology, and of the clinical and physical aspects of the disease, for its administration.

Its chief action lies in the stimulating effect it has upon the bone marrow cells, which results in promoting in the blood circuit and in the tuberculous foci an increase of polymorphonuclear neutrophilic leucocytes with specific antibodies.

The new polymorphonuclear neutrophilic leucocytes eventually mature and are then endowed with greater antibody forces and with a better phagocytic and "reconstructive" action.

The old theory of Koch that "tuberculin promotes healing by causing a slough in the tuberculous foci" is today admitted to be the acme of the effects of tuberculin upon the tuberculous lesions.

The long attempt to determine the specific action of tuberculin has not led to the finding of any definite antitoxic substance.

The laboratory, however, has helped to determine the presence of specific agglutinins, precipitins, opsonins, and lysins in the blood of the tuberculous. The study of the differential blood picture has shown that the leucocytes are susceptible to changes in their relative percentage, and also to changes in the nuclear substance of the polymorphonuclear neutrophilic leucocytes.

For instance, the lymphocytes are increased in "incipient" and some "moderately advanced" cases, and decreased in the "very active" and "toxic" cases.

The polymorphonuclear neutrophilic leucocytes are always increased in the "very active" and "advanced" cases, and the structure of their nuclear substance varies from day to day, according to the absorption of tuberculin toxins in the blood circuit.

Changes in the structure of the polymorphonuclear neutrophilic leucocytes have given cause for extensive research

*Prepared for Section on Medicine, Southern Medical Association, Twelfth Annual Meeting, Asheville, N. C., Nov. 11-14, 1918, postponed one year on account of influenza epidemic.

by Arneth, Meyer Solis-Cohen, Minor, and others.

It is interesting to note that the blood examination in different stages of tuberculosis shows that the neutrophilic blood picture fluctuates more frequently, and presents a greater lobulation in the nuclear substance of the polymorphonuclear neutrophilic leucocytes in the "active" than in the less "active" tuberculous. The "toxic" tuberculous always show a high percentage of polymorphonuclear neutrophilic leucocytes with one solid lobule, and the neutrophilic blood picture seldom fluctuates.

The "quiescent" and "arrested" cases generally show a high percentage of polymorphonuclear neutrophilic leucocytes with two or more distinct and separate lobules.

The "healthy" individual who does not react to the tuberculin tests always shows a high percentage of polymorphonuclear neutrophilic leucocytes with two or more distinct and separate lobules.

It seems evident from the above that the polymorphonuclear neutrophilic leucocytes with two or more separate lobules, absolutely apart and not connected by an isthmus band, are more "matured" and are endowed with a better phagocytic and a greater antibody action than the polymorphonuclear neutrophilic leucocytes with one lobule.

Upon tabulating the neutrophilic blood picture in cases of tuberculosis where tuberculin is administered, one is impressed with the fact that there is always an increase of polymorphonuclear neutrophilic leucocytes with one lobule after the injection of a "tonic" dose of tuberculin. This is generally followed in a few days by a corresponding increase of polymorphonuclear neutrophilic leucocytes with two or more distinct and separate lobules.

In cases which react to "over-tolerant" or "reactive" doses of tuberculin there is always present a very marked increase of polymorphonuclear neutrophilic leucocytes with one solid lobule, and the chest examination in such cases invariably shows an increase of moisture about the tuberculous lesions.

In a few days after a tuberculin reaction, and sometimes later in the more "advanced" cases, there is a "drop" in the neutrophilic index to where it was previous to the administration of the "reactive" dose of tuberculin; and this "drop" in many cases amounts to a marked increase of polymorphonuclear neutrophilic leucocytes with two or more distinct and separate lobules.

Cases where tuberculin reactions are frequently repeated always show a persistently high neutrophilic index, i. e., a high percentage of polymorphonuclear neutrophilic leucocytes with one solid lobule. These cases also always show an increase of moisture over the tuberculous lesions.

This increase of moisture is accounted for by the overcrowding of polymorphonuclear neutrophilic leucocytes about the tuberculous foci, the pressure of the cells against each other producing a pneumonic serum exudate.

Small ineffective doses of tuberculin cause no changes whatever in the nuclear substance of the polymorphonuclear neutrophilic leucocytes.

In 1912, the writer reported before the National Tuberculosis Association his first observations upon the value of the "Neutrophilic Index as a Guide for the Administration of Tuberculin."

Today, after carefully observing the changes in the nuclear substance of the polymorphonuclear neutrophilic leucocytes in a series of 400 cases of tuberculosis, with the study of over 30,000 blood smears taken from patients at the Dradom Sanatorium and at the Charity Hospital; and after a careful comparison of the clinical and physical findings of the cases under observation, the writer feels certain that the neutrophilic index can be utilized in guiding the dosage and administration of tuberculin with great advantage and marked benefit.

I wish to state, to prevent confusion and to make clear the above conclusions, that in taking the neutrophilic blood picture I do not follow the method of Arneth, i. e., I do not tabulate the nuclear lobulations as 1, 2, 3, 4, etc., regardless of the fact whether or not the nuclear lobules are connected by an isthmus band. For instance, the polymorphonuclear neutro-

philic leucocytes with one solid lobule are counted as "ones."

The polymorphonuclear neutrophilic leucocytes with two or more lobules connected by an isthmus band are also counted as "ones."

The polymorphonuclear neutrophilic leucocytes with two or more lobules distinctly apart and not connected by an isthmus band are counted as "twos," "threes," "fours," etc.

In other words, the polymorphonuclear neutrophilic leucocytes with several lobules but with the lobules all connected by an isthmus band are counted as one lobule cell just the same as the polymorphonuclear neutrophilic leucocytes with one solid lobule.

Only the polymorphonuclear neutrophilic leucocytes with 2, 3, 4, or 5 lobules that are distinctly separate and not connected by an isthmus band are counted as 2, 3, 4, 5 lobule cells.

Therefore, after counting 50 or 100 polymorphonuclear neutrophilic leucocytes and tabulating them according to their lobulations as stated above, we may find the following neutrophilic blood picture:

1	2	3	4	5
100	0	0	0	0
or 96	4	0	0	0
or 94	6	0	0	0
or 94	4	2	0	0
or 92	8	0	0	0
or 90	6	2	2	0
or 78	12	6	2	2

The percentage of polymorphonuclear neutrophilic leucocytes with one lobule gives the neutrophilic index. The neutrophilic index is taken every second or third day according to the case under treatment. Smears are made with cigarette paper, and Wright's blood stain is used.

For all practical purposes, in administering tuberculin I have adopted the following:

If the neutrophilic index is constantly 96 or above, the administration of tuberculin is contraindicated. Never give tuberculin if the neutrophilic index is 96 or above.

When the neutrophilic index falls to 94 tuberculin may be given, or the dose may be increased by one or two tenths. If the neutrophilic index consecutively falls to 94, the dose may be safely increased by three or more tenths. When the neutrophilic index falls to 92 or lower, the preceding dose (if doses are below .005 mg.) may be doubled.

This is especially so if the last neutrophilic index was 92 or 94.

It appears from the above that when tuberculin is given in too large and too frequent doses, there is accumulated in the blood circuit, as a result of the overstimulation of the bone marrow cells, an excessive number of polymorphonuclear neutrophilic leucocytes with one lobule.

These one-lobule polymorphonuclear neutrophilic leucocytes appear not to have the same phagocytic and antibody action as those that are more lobulated and matured.

There is also acquired an overcrowding of new polymorphonuclear neutrophilic leucocytes in the tuberculous foci, which results in a softening of the lesions, thus promoting the absorption of tuberculin toxins in the body.

Therefore, too frequently repeated "over-tolerant" or "reactive" doses of tuberculin lower the body's resistance.

Consequently, a sufficient interval should be allowed between doses of tuberculin in order to permit the complete elimination of the previous dose and thus prevent the overcrowding of the blood circuit with less matured and less resistant cells.

Doses of tuberculin should have a stimulating effect but should not be too large, so that the stimulation of the bone marrow cells will not be too severe. When giving tuberculin it is essential that we rigidly carry out the rest treatment, because exercise will promote the absorption of tuberculin toxins and the latter will eventually exhaust the patient's cellular resistance by causing a persistently high polymorphonuclear neutrophilic leucocytosis with a high percentage of one-lobule cells.

To avoid the dangerous effects of tuberculin, let us remember that the very "active" tuberculous has no protective barrier about his lesions and is constantly absorbing a free amount of tuberculin toxins.

He will show a persistently high neu-

trophilic index, which contraindicates the administration of tuberculin.

In the "active" tuberculous we know when the neutrophilic index repeatedly falls to 94 or below that the severe "activity" or "toxicity" of the case has subsided and we can safely administer tuberculin.

After a "reactive" dose of tuberculin, with the appearance of a low neutrophilic index (94 or lower) we know whether the previous dose of tuberculin has been eliminated and has ceased to stimulate the bone marrow cells. For example, the neutrophilic index falls to 94 only once or twice every fourth or sixth week in the "very active" tuberculous.

Tuberculin can seldom be given to this class of case. In the ordinary "active" cases with clinical symptoms there is no frequent fluctuation of the neutrophilic blood picture and the neutrophilic index falls to 94 about every seventh day to three weeks.

In the less "active" cases the neutrophilic blood picture fluctuates frequently and the neutrophilic index falls to 94 or lower every second, fourth or seventh day. Tuberculin may be safely given in these cases every second, fourth or seventh day.

It is well to bear in mind that the neutrophilic index is very sensitive to the effects of rest, diet, worry, etc., but that it is especially affected by mental and physical exertion. This brings before us again the importance of carrying out the rest treatment in all cases of tuberculosis, and especially in cases where tuberculin is administered.

Remember also that the neutrophilic index is a fair gauge for the amount of exercise the patient undertakes.

The safest way to give tuberculin is to start with the smallest stimulating dose and to increase and gauge the interval between doses according to the fluctuations of the neutrophilic blood picture.

The writer firmly believes that the surest and best results can be obtained by gradually increasing the dosage to the point of acquiring a tuberculin immunity or to a state where the patient ceases to react to the tuberculin tests.

The preparations of tuberculin used in our series of cases reported were Koch's Bacilli Emulsion and Koch's Old Tuberculin. The Bacilli Emulsion was given until a dose of 5 mg. was reached, and Old Tuberculin when doses of 5 to 20 mg. were used. The initial dose of Bacilli Emulsion was 5 trillionth mg. in the "active" incipient or moderately advanced cases.

The average "incipient" case reaches the 20 mg. dose of Old Tuberculin in from six months to one year. The "moderately advanced" cases reach it in from eight months to three years.

It has been a great problem to me when administering tuberculin by the old clinical method to know when the doses given had any effect upon the tuberculous foci unless there appeared signs and symptoms of a local or constitutional reaction.

Today, most phthisiologists agree that too frequent tuberculin reactions may prove very harmful to the patient. As a remedy for the above, some have suggested the giving of very small doses repeated at long intervals. Admitting that this method may prove the safest in the hands of one who has no practical experience and knowledge of the administration of tuberculin, I feel that this homeopathic method is also detrimental to the patient. If we use tuberculin in ineffective doses, why use it at all?

For the above reasons I felt the necessity of having some method by which we could administer tuberculin in doses and at intervals so that we would know when we are giving "effective" or "tonic" doses, and especially when we are approaching the dangerous "over-tolerant" or "reactive" doses, which will injure the patient more than it will benefit him if such excessive or too frequent doses are given.

An important feature which is confirmative and in favor of the above conclusions, is that the study and comparison of the clinical signs and symptoms in each individual case tabulated showed that the improvement of the patient corresponded with the frequent appearance of a low neutrophilic index.

In conclusion, by giving tuberculin guided according to the fluctuations of the neutrophilic blood picture as above stated, we are able to control the stimulation and

supply of new polymorphonuclear neutrophilic leucocytes in the blood circuit and to favor also a greater supply of matured polymorphonuclear neutrophilic leucocytes in the tuberculous foci.

By so doing we increase the leucocytic resistance, both in the blood and about the tuberculous areas, and greatly aid and promote the "reconstruction" and healing of ulcerated tuberculous areas.

The neutrophilic index is easily taken and is a simple and efficient guide for the administration of tuberculin.

It is also a reliable "gauge" for the control of exercise in tuberculosis.

Finally, the predominance of one lobule polymorphonuclear neutrophilic leucocytes, associated with an increase of moisture (moist rales) over the tuberculous lesions and following a reaction to tuberculin or severe exertion, clears up a doubtful condition which we often see, but for which we could give no tangible reason nor accountable cause.

SECONDARY DILATATIONS IN CHRONIC MYOCARDITIS

By Alexander G. Brown, Jr., M.D.,
Richmond, Va.

The internist seldom has a more serious problem to deal with than chronic myocarditis. Depression of contratility, evidencing itself in the low-toned muscular contraction of chronic myocarditis, marks the cardiac dilatation and remains a cardinal heart function difficult to arouse under the effect of an overwrought condition. To add to the seriousness and difficulty of dilatation in chronic myocarditis, there is the usual association of degenerative changes in grosser blood-vessels of the body as well as in the microscopic blood vessels, parenchyma and interstitial structures of the kidneys and other regional vascular fields.

Dilatation of an old heart presents problems of greatest difficulty, but, with all, in some cases, in the solution of these ominous difficulties the physician is afforded opportunity of securing that rare reward in work in internal medicine known as "a spectacular result." For in some of these cases the direct and emphatic response of the patient to the administration of appropriate drugs really borders on the spectacular. It is not of course, claimed, in any degree, that the cardiopath of this type is cured of heart disease or that the drugs have removed him entirely from the realm of danger in many instances. But it is affirmed that to set straight at all and to re-establish cardio-vascular compensation when under dilatation and stasis in the face of impending death, is truly a phenomenon of striking importance.

We may, then, consider briefly in merely a clinical way some sort of rough grouping of the dilatations one meets in dealing with the chronic myocardiopath and consider a word about the treatment.

Circulatory insufficiency in cases of chronic myocarditis usually results from an acute and sudden dilatation,—a slow and gradually increasing dilatation with a previously existing dilatation. Cases of heart disease in which the musculature is chronically diseased, whether preceded by primary valvulitis which brings about abnormal hypertrophic growth of muscle structure or preceded by pure muscular disease resulting from infections or metabolic poisons of long standing, are threatened by grave and ominous secondary dilatations which are evidences of muscle failure and which mean fatal termination unless the etiologic or pathologic conditions prevailing in the body are removed or improved. These dilatations of the heart or types of heart failure referred to are all preceded, as indicated in the term "secondary," by a primary dilatation which takes place in the earliest stages of cardiac pathology. This primary dilatation is a temporary relaxation of the heart walls and is taken up by the compensatory muscular development resulting from extra heart effort. The muscular structures in such cases, although weakened by the extra load or by the continued intoxications, carry on the heart action, and with more or less satisfaction meet the varying circulatory demands occurring in the changing needs of the body. As time goes on, either from extraordinary demands of bodily effort or unabated action of etiologic factors, these hearts undergo that secondary dilatation which falls in one of the groups before mentioned.

The following is an illustrative case of acute dilatation of a chronic myocardiopath:

CASE REPORT

Mrs. L., white, aet. 65, was seen June 11, 1918 After midnight I responded to an urgent call to go at once to this patient. She was alone except for an intelligent white maid, who was greatly excited and of little use. The patient was sitting up in bed, propped upright upon all available pillows, holding a basin in her lap, breathing very fast, coughing and bringing up large quantities of frothy blood-stained mucus. She was livid. Her mind was clear although she was much alarmed and understood her serious condition. The radial pulse was not palpable. There was a cold sweat standing on her body. Her face was pinched. She asked if she were dying; if so she wished to have the priest called.

Even a hurried examination was not justifiable. To all appearances she was dying. Her heart was in a state of acute secondary dilatation; her lungs were in general pulmonary congestion; her right heart was overloaded; and venous stasis was impending.

She was given an intravenous injection of strophanthin and a hypodermic of morphine sulphate gr. 1/8 and atropine sulphate gr. 1/100. An ampoule of ammonia was crushed and held to her nose. The patient was reassured with every word of confidence possible to command. After these measures were taken, in a short time her condition began to improve. Within an hour she was practically out of immediate danger. Her lungs gradually cleared up, the blood-stained expectoration ceasing and breathing and breath sounds becoming more normal.

I returned next morning and found a patient with chronic myocarditis, who had had more or less similar attacks in California and elsewhere in her travels. Her blood pressure was low, systolic 90 and diastolic 40; her heart sounds were blurred and faint; systolic blowing cardiac murmurs (variable) were elicited over the base; her heart was increased in diameter; her pulse was weak, slow and irregular; rales were heard over the posterior base of the lungs; her liver was not enlarged; her kidneys seemed from examination of the urine not to be hyperaemic.

Under treatment she returned to her normal state.

This case illustrates an acute dilatation in a chronic myocardiopath which prompt medication relieved. She is now doing well so far as her heart is concerned. Since this attack she has developed a painful herpes zoster involving the nerve radicles of the superior branch of the fifth cranial nerve. These herpetic blisters appeared on the right side of head and face, involving the cheek, the side of the nose, the upper eyelid, the forehead and the scalp.

Myocarditis and neuritis in this case were probably secondary to chronic alveola- focal infections at the roots of certain gold-crowned teeth.

Dilatation secondary to chronic myocarditis which is progressive, but slowly so, is illustrated in the following case, in which compensation was broken by physical strain without having been restored up to the time of my examination.

CASE REPORT

Mr. H. C. B., of A-ville, white, male, aet. 71, a merchant, was referred by his physician for diagnostic study July 10, 1918. Mr. B. stated that he had had no illness since childhood except "malarial" attacks (general rheumatic pains over his body); that twenty years previously he had a severe attack of sciatica and also another twelve years previously, which continued from September till April. He stated that he has never used alcohol, tobacco only moderately, tea and coffee only moderately; that he had a good appetite, but only a fair digestion. Venereal infections denied.

Mr. B. stated that in the past March he began to have some dizziness without apparent cause; to feel an oppression about the chest at night after going to bed, and to experience difficulty in breathing on exertion. He stated that one day after working on a ladder putting away some goods he began to feel faint and as if he were about to lose consciousness; that he felt "wheezing in his chest," "rattling" in his throat and began to gasp for breath. This lasted for fifteen minutes, he stated, and was followed by coughing and expectoration of frothy blood-stained mucus. Since that time, he stated, the coughing and wheezing had annoyed him continuously. It was for relief of these symptoms that he sought medical advice.

Examination of the patient showed a severe oral infection of long standing (diseased teeth, gums and jaw bone). The heart was irregular and intermitting. The heart sounds were faint and difficult to hear. Heart murmurs along the base were obscured. Blood pressure was 140 systolic and 70 diastolic. The skin was cyanotic; venous pulse was observed; and pulmonary edema at the posterior base was found. The liver was enlarged. Gaseous distention of the colon was noted.

A possible third group of cases of secondary dilatation is a mixture of the foregoing. In this group the chronic myocardiopath shows all the usual signs of the heart disease. Circulatory insufficiency is more or less persistent or chronic, varying in a given case and each case presenting a somewhat different train of symptoms. These patients suffer from dyspnea, especially on exertion. Paroxysmal attacks of shortness of breath, without pulmonary edema, is seen in these cases and this is usually due to hydrothorax, right-sided or bilateral. There may be distress over the precardium. There are digestive disturbances. The liver is usually enlarged, tender and firm below the costal margin. The objective signs indicate the heart lesion—usually a left-

sided deformity valvulitis or vegetative sclerotic changes; hypertrophy of the muscle of the ventricle and dilatation as indicated by the increased cardiac dullness and impact. The heart muscle shows disturbances of conduction and rhythm. The pulse is irregular and intermittent in most cases. There may be general or local anasarca. In such a chronic myocardiopath a sudden (oftentimes relieved) secondary dilatation will appear in the clinical course of the case. From some unusual exertion, some attack of indigestion, such a case may have an acute dilatation of the heart (already dilating) in what, added to chronic symptoms, are to those previously mentioned of tachypnea, general pulmonary edema cyanosis, expectoration upon coughing of blood-stained sputum. This secondary dilatation is different from the others only in the fact that it appears in the case of chronic heart disease which seems from its obstructive symptoms to be advancing to already its terminal stage. What physician has not had cases of heart disease of months' duration (one, I recall, now of ten years' duration) with all these gross signs of the late heart trouble, in which at times sudden pulmonary passive congestion appears and all the signs of heart dilatation point to early heart failure. Prompt treatment persisted in for some hours oftentimes brings these patients around and under care retards the progressive advance of failing heart function.

I recall a sister-in-law of one of my professional colleagues who has had all the symptoms of chronic myocarditis for ten years. I have been with him in consultation in two attacks of acute dilatation in which she was relieved, although death seemed imminent each time. He tells me that he had fought it out alone, much to his credit, on other occasions.

My records of heart cases will show numbers of this type of secondary dilatation. It seems to me that into this group one may see evidence of a gradual progressive dilatation despite the daily medical care during the course of which acute dilatations appear.

One word on treatment. Fear, terror, alarm and excitement are a few of many shades of mental stress suffered by the cardiopath as he with more or less understanding contemplates the seriousness of his condition. Often no body-toxin dulls his sensibilities and he views clearly the reality of his bad state. This but adds to the difficulty for the physician. But, fortunately, oftentimes it lies in the power of the medical man, with reassuring bearing, confident action, encouraging word and telling poise, to drive away something of the mental stress even before drug or other therapy can be applied. So, reassurance and encouragement from the physician, associated and supported by prompt action, are the first remedial agents to be used.

Morphine.—To secure sustained and complete composure in this condition no drug serves a better purpose than morphine sulphate. Give hypodermically one-sixth of a grain of morphine sulphate in proper combination with atropine sulphate.

Rest in Bed. — Extreme precaution should be taken to prevent the patient from moving or exerting himself in bed. Urination and defecation should be managed without exertion. The patient should be allowed to assume a comfortable position in which breathing can be accomplished readily and in which secretions in the bronchial tract may be raised and expectorated with least effort. Cool, fresh air should be allowed to enter the apartment and stimulating respiratory inhalants may be given—"smelling salts."

Digitalis.—This is the drug in which most reliance may be placed in the dilated group of hearts.

PLAIN HUMAN SERUM TREATMENT OF PNEUMONIA*

By J. H. Cannon, M.D.,
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Charleston, S. C.

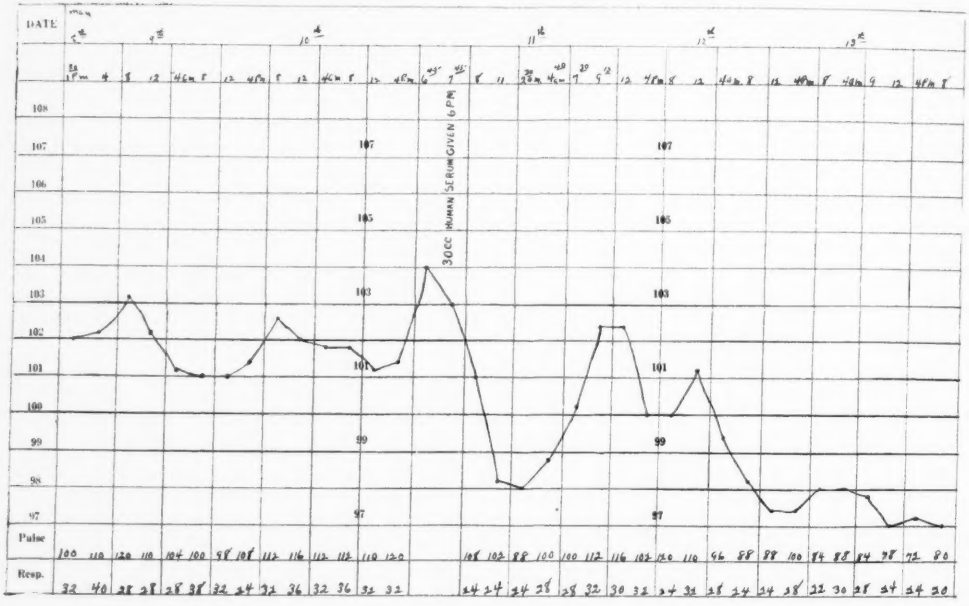
The development of pneumonitis as a complication of the milder acute respiratory infections has long been known and the recent epidemic of influenza through

*Read before the Medical Society of South Carolina (County), Charleston, S. C., June 10, 1919.

which we have passed, claiming its extremely large morbidity and very large mortality has been no exception. It is in regard to the treatment of the consolidation complicating the latter that I wish to offer for your consideration.

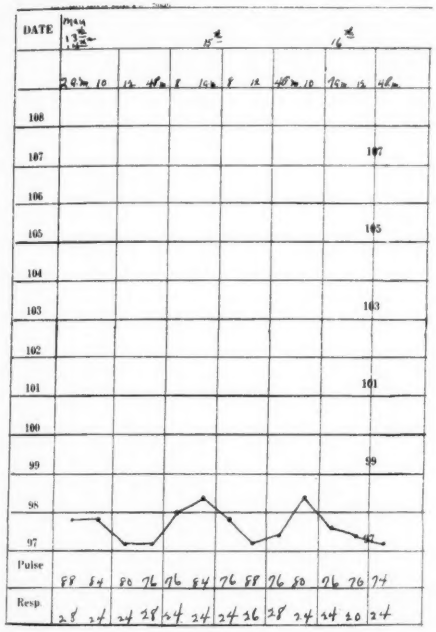
The onset, clinical manifestations, physical findings, course and terminations have all been fully discussed in the literature and are familiar to you all. The treatment, however, is unsatisfactory and is a question about which much has been written, and is one in which we were advised by many different writers of the success in their hands of as many different methods of treatment. It is interesting to note in the literature the evolution of the different treatments advocated.

Early in the epidemic we were advised of the success of different drugs consisting mainly of variable combinations of the cold tar preparations, opium, ipecac, salicylates, etc., all of which gave such unsatisfactory results that other agents were sought which might offer more encouraging results. Later, vaccines combining the influenza bacillus with various strains of the pneumococcus, streptococcus and staphylococcus were advocated and considerable success was reported following its use as a prophylactic agent. Rosenow, of the Mayo Clinic, is among those advocating prophylactic vaccination against the secondary invader; and statistics following its use have been very encouraging. Others, especially Wollestine, of the Rockefeller Institute, recommended vaccination against influenza with a vaccine of the influenza bacillus only and reported excellent results in preventing the development of the disease.



However, before the profession had access to the prophylactic vaccination measures the mortality was reaching alarming proportions, and throughout the country men were trying almost any measure which seemed to hold out any hope. Especially is this true in the cantonments and training camps; and as a result of this stimulus the idea of convalescent serum as a curative agent was conceived. McGuire and Redden, of the Naval Hospital, Chelsea, Mass., were probably the first to report their results with this method. Their reports show a reduction in the mortality that is extremely gratifying. Their preliminary report showed a total of thirty-seven cases treated up to that

time, thirty of which were convalescent, six under treatment, one dead, and all but one had a favorable outlook. Comparing this with their previous mortality of from 50 to 60 per cent., I think certainly seem to justify its further trial. O'Mally and Hartman reported forty-six cases of influenza pneumonia treated with convalescent serum with three deaths or six and



a half per cent., while in one hundred and eleven cases treated without serum twenty-eight died, or twenty-five and two-tenths per cent. mortality. Kahn, of Camp Zachery Taylor, reports twenty-five cases treated with serum of convalescents with a mortality of forty-eight per cent., while of eighteen cases which had no serum he lost sixty-six and six-tenths per cent.

At the U. S. Naval Hospital, Charleston, S. C., where I was assigned during the epidemic, the mortality, while not so large as reported at some of the stations, was of such proportions as to be very discouraging and we were ready to try anything which seemed to hold out any hope. Accordingly when reports on the use of convalescent serum were made we determined to give it a trial, but at the time had no available donors. Acting upon the suggestion of Dr. Jesse W. Smith, we tried plain human serum, that is, serum of a donor who had not had pneumonia and without regard to whether or not he had had influenza. Dr. Smith believed that this serum would act as well as the convalescent serum, for he thought that its value depended not upon the antibodies it contained, but upon the complement contained in the serum, and having been supplied, permitted the antibodies of the patient to neutralize the toxins and disintegrate the organisms from which the patient was suffering. We, therefore, obtained a donor who had not had the disease and after obtaining a negative Wassermann and finding no clinical evidence of syphilis, the preliminary blood tests for isoagglutinins and isohemolysins were made. Finding the blood of the donor and the recipient compatible, about 250 c. c. of blood was drawn into sodium citrate solution and after allowing it to settle overnight in the refrigerator, the serum was pipetted off and given to the patient by the gravity method. The results were extremely gratifying. The number of cases in which this method was used will be reported by Dr. Smith later.

CASE REPORT

The only case of pneumonia in which I have had the opportunity of using the serum since being released from active duty in the Navy was that of Dr. H. W. de S., who gave the following history. He had had an attack of influenza in September, 1918, and before regaining his strength reported for active duty in the Army. He soon went across, and while on the other side, in February, 1919, developed a severe cough and ran an elevated temperature for several days. The fever soon cleared up, but the cough persisted until the onset of the present illness.

On May 7 he began feeling badly about 2 o'clock in the afternoon, developed pain in the left side posteriorly about the junction of the twelfth rib and vertebrae, with soreness in the hypochondrium of both sides. By 11 P. M. the temperature was 102.5°, pulse 100, and respiration 32.

Physical examination revealed only suppression of breath sounds over the left side. Next morning the condition was worse; the breath sounds about the angle of the left scapula were distinctly rough, associated with some small fine moist rales and slight dullness. The pain, elevated temperature, pulse and respiration were about the same.

He was transferred this date to the Baker Sanitorium, where his condition, while not yet alarming, showed unmistakable evidence of prog-

ress to the stage where it might easily become so.

On the morning of the third day the temperature was 101.8°, pulse 112, and respiration 36. The cough still was present in severe paroxysms, during which he would become very dyspneic and cyanotic. The consolidation had spread until then it included practically the whole of the left lower lobe; the pleuritic pain was rather severe and the pulse had lost considerably in tone.

After consultation with Drs. Ball and McInnes we determined to try plain human serum, and in order to save time I obtained a specimen of his blood. Dr. F. B. Johnson tested my own blood against his, and finding them compatible, withdrew about 75 c. c. of blood, removing the serum by the centrifuge method, and obtaining about 30 c. c. of serum, which was given that evening about 5:30. In about an hour he had a rather severe chill, rise of temperature to 104°, associated with a severe coughing spell, became very nervous and cyanotic (probably from the exertion of coughing) and the pulse became very rapid. This was followed in an hour by a drenching sweat and an improvement in all symptoms. The temperature had reached normal by 11 P. M., pulse 102, and respirations 24.

I wish also to emphasize the improvement in the patient's subjective symptoms associated with the fall in temperature. I can express it no better than to quote his own words to his wife about 9 P. M. as follows: "It is hard to believe that I feel as well as I do." He had no pain, could breathe comfortably and demanded that he be taken off the back rest which he had been on constantly since the onset, and asked to be let alone and allowed to sleep, which he promptly did and slept very quietly until 4 A. M., when he was awakened by a coughing spell and had to be placed on the back rest and given codeine for the pain which returned with the cough. The temperature rose to over 102° by 9 o'clock the next morning and preparations were made for repeating the serum that afternoon. By evening, however, the temperature had reached 100°, pulse 102 and respiration 32, and there was such an improvement both subjectively and objectively that it was decided not to repeat the serum that day and by 8 o'clock the next morning the temperature was 92.2°, pulse 84, and respiration 24. They never rose above normal afterward and further convalescence was uneventful.

In the case cited above, the fact that the patient had had influenza and still had the cough he developed with that disease, it is possible at least that it may have been associated with the Type IV infection which he had, although clinically the case was one of pure lobar pneumonia.

It is not expected that conclusions regarding the value of the procedure could be drawn from the results obtained in one case. At the Naval Hospital this method was adopted in the treatment of at least twenty-five cases in mine and other services with very encouraging results, certainly to the extent of justifying its further trial.

BRONCHO-PNEUMONIA IN ADULTS*

By L. J. Lindsey, M.D.,
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Text books in the past have devoted very little space to this important subject. They merely refer to this disease as being a condition of early childhood, some going so far as to say that the majority of infants under three years of age all have this type of pneumonia, while those above this age have the more common form of lobar pneumonia, and end their statement by saying that it is occasionally found in adults.

In this paper I shall not attempt to refer to the types of bronchial pneumonia, due to the inhalation of foreign substances, nor that following anesthesia, poisonous gases, etc. This paper is based upon my experience and observation in the treatment of over 600 cases of pneumonia, 50 % of these, or 300 cases, being of the bronchial type. This experience and observation was made in three United States Army base hospitals in France. Perhaps the best way to present the subject will be by briefly mentioning the definition, etiology, symptoms, diagnosis, prognosis, prophylaxis, complications and treatment.

DEFINITION

Broncho-pneumonia is a bacterial infection of the finer bronchi and their relative lobules. The process begins with the inflammation of the bronchioles and smaller bronchi. A capillary bronchitis, which extends to the alveoli, and the whole lobule or a group of lobules becomes filled with exudate, cellular and hemorrhagic, and is distinctly less fibrinous than in the lobar pneumonia.

Personally, I think in many cases the process of inflammation begins in the pharynx extending down the trachea into the larger bronchi and finally into the smaller bronchi and bronchioles. This statement is based upon the findings in

*Read before the West Tennessee Medical Association, Dyersburg, Tenn., May 29, 1919.

120 cases at autopsy, at which time there was a developed case of pharyngitis, tracheaitis and bronchitis present, all of which showed a different appearance both macroscopically and microscopically, showing different degrees of inflammation along the course from the pharynx to the bronchioles. The same organisms were isolated from the different parts of this inflammatory process.

ETIOLOGY

Broncho-pneumonia occurs either as a primary or secondary affection. The secondary frequently follows measles, influenza, whooping cough and typhoid fever, and occasionally almost any of the eruptive fevers.

No doubt that the lack of fresh air, the inhalation of irritating substances, as dust, etc., and being subjected to exposure, especially when fatigued, are all predisposing causes.

As to micro-organisms producing this disease, the following stand out very prominently, namely: the micrococcus lanceolatus, streptococcus pyogenes, the streptococcus which may be either of the hemolytic or the non-hemolytic variety, the staphylococcus aureus and albus, Friedlander's bacillus pneumonia, the influenza bacillus, and following diphtheria the Klebs-Loeffler bacillus.

Let me state here that there is a tendency for a combination of the above-named organisms instead of a single variety. For instance, the streptococcus is frequently associated with the pneumococcus and these are frequently accompanied by the staphylococcus.

The reason for mentioning this combination is to show later under the treatment of this disease how difficult it is to obtain a proper serum or vaccine.

SYMPTOMS

These vary according to the type of infection and virulence. I shall attempt to picture the symptoms in a mild and later the symptoms of a severe case. It is the mild and severe cases that are hardest to diagnose, especially early, and of course you will understand that the average comes between the two.

The initial symptoms of a mild case are as follows: The patient first complains of a chilly sensation, no distinct chill as a rule as you find in lobar pneumonia, accompanied by a headache and frequently a general aching over the entire body, slight sore throat and usually slight cough with little or no expectoration. Upon physical examination in this type little, if anything, is found abnormal in the chest. As a rule inspection does not reveal anything, neither does palpation nor percussion, but by careful auscultation you may be able to elicit a few medium moist rales. The favorite site of these rales is just below the angle of the right scapula, frequently accompanied, but not necessarily, by the same signs on the opposite side. In from twelve to twenty-four hours, forty-eight in some cases, these signs increase and the breathing is apt to show prolonged expiration, broncho-vescicular or bronchial breathing over these areas. It is at this time that you get a slight dullness on percussion. I might state that the percussion note is apt to be misleading, being more or less tympanitic in character, due to the compensatory emphysema of the surrounding tissue about the small area of consolidation. Of course, as the small areas of consolidation coalesce, the typical signs of consolidation make their appearance. Unless the area of consolidation is of considerable size the respirations are but little increased, frequently not running over 28 per minute, the pulse about 90 to 100, the temperature from 99 to 102°, sometimes reminding one of the intermittent type of malarial fever. There is a little cyanosis with a moderate amount of expectoration which often shows a moderate amount of blood. The expectorated material does not have the characteristic prune juice appearance, nor the gummy, tenacious sputum that one finds in lobar pneumonia, the leucocyte count ranging from eighteen to twenty-two thousand.

Now, in contrast to these mild symptoms, let me describe a severe case.

The patient is seized with a chill or rigor, severe headache, vomiting and general feeling of weakness, a moderate amount of cough and expectoration, with pain in the chest, often pain in the right iliac region, resembling appendicitis and hard to differentiate for the first twelve or twenty-four hours, also often shows signs of meningitis to the extent that a

lumbar puncture is often resorted to in order to clear up the diagnosis. Upon examination the physical signs in the chest are practically the same as in the mild case just described, except that the areas of consolidation form much faster. Cyanosis appears early, the temperature may go as high as 104° F., the pulse around 120, respiration around 30. The respiration and pulse rarely go higher until a few hours before death. These cases frequently die from within 24 to 48 hours after the onset. The leucocyte count, as a rule, is high, but owing to the extreme toxemia may be low.

DIAGNOSIS

Signs of an acute bronchitis with a temperature above 101° lasting over three days spells B. pneumonia, for the patient is too sick for an ordinary bronchitis.

With lobar pneumonia it may readily be confounded if the areas of consolidation are large and merged together. This, in my opinion, accounts for so few cases of this disease being recognized in the past. Usually the history of the two diseases is quite different, but if careful attention is given to the mode of onset, by careful physical examination one may be able to differentiate between the two, remembering the fact that broncho-pneumonia in the far majority of cases is bi-lateral and if seen early have the typical signs of acute bronchitis. The tendency in lobar pneumonia is for the lung to become affected by lobes and not by lobules. Later, as a rule, lobar pneumonia ends by crisis within three to eleven days where bronchial pneumonia frequently ends by lysis, three to fourteen days, some of our cases extending over a period of many weeks.

The next condition to be differentiated from bronchial pneumonia is an acute miliary tuberculosis and this differentiation, unless verified by the presence of tubercle bacilli in the sputum, may be impossible for at least two weeks, the physical signs being identical.

PROGNOSIS

The mortality of broncho-pneumonia varies greatly in different epidemics ranging from 10 to 60 %. The reason for this, I am sure, is due to the increased virulence of the various organisms. For instance, we know that the passage of micro-organisms from one individual to another increases the virulence of the type, and hence the epidemics of higher mortality through transfer through one or more persons, thereby increasing their virulence to the point where it is almost impossible for one to withstand it. Of course the prognosis depends largely upon the early diagnosis and proper treatment.

PROPHYLAXIS

I am convinced that by careful isolation of all infectious diseases with attention to the mouth, nose and throat, spraying or gargling with any good antiseptic solution, such as Dobell's, will serve as a prophylaxis in this disease.

COMPLICATIONS

Of the complications we had the following:

Empyema 10 %, which may occur early and have a tendency to occur in pockets, making the diagnosis rather hard and impossible unless one resort to the frequent use of the exploratory needle, together with the use of the x-ray. Early operation for empyema is attended by a higher mortality than later on, after the fluid has become creamy, with a drop in temperature, pulse and leucocyte count.

Mastoiditis appeared in over 75 % of the cases at autopsy, and, strange as it may seem, a large per cent. of these never complained of any pain during their illness.

Otitismedia occurred in a few cases.

Fibrinous pericarditis occurred in three cases.

Peritonitis appeared in one case.

Erysipelas appeared in one case.

Hyalin degeneration of the muscle fibers of the rectus abdominis muscles leading to their rupture was found in two cases.

Bronchiectasis occurred in many cases. A sclerosis of the consolidated areas of the lung took place in 2 %, there being an overgrowth of connective tissue replacing the normal lung tissue. These areas persist for months and years and are very hard to differentiate from a tuberculous process.

TREATMENT

The frequency and seriousness of broncho-pneumonia render it a disease which

taxes to the utmost the resources of the practitioner. There is no acute pulmonary affection over which he at times so greatly despairs. On the other hand, there is not one in which he will be more gratified in saving patients who have seemed hopeless. The general measures are much the same as in lobar pneumonia.

In the beginning of this disease, as in the beginning of all infections, a dose of calomel is generally indicated, the size of the dose being from three to six grains given in broken doses, followed in about three hours with magnesium sulphate. The patient should receive plenty of fresh air and, if possible, sunshine, care being taken not to chill the body. Water should be given freely and the temperature controlled by frequent sponging. Coal tar preparations should never be given except for a dose or two at the onset, for they have a tendency to cripple the heart, the one organ that suffers most in this dreaded disease. If the pain in the chest is too severe this should be controlled by the application either of heat or cold over the area, and if this will not suffice, by a small amount of codeine or morphin given hypodermatically; but care should be taken that the opiate does not constipate or lessen the secretions. As for expectorants, ammonium chlorid, combined with syrup of citric acid, has been found to be the most reliable. Rarely, if ever, does this produce nausea when given in this combination. If the cough is loose but rather persistent, a small amount of codeine or heroin may be added to this mixture. In no disease is it so necessary that care should be taken in selecting a suitable diet so as to maintain the patient's strength and at the same time produce as little tympany as possible. Carbohydrates should be pushed, also milk, eggs, broths and fruit juices given.

No patient with either form of pneumonia should be allowed to pass a day without at least one evacuation of the bowels, small doses of calomel given at intervals of every other day with an enema, or small dose of magnesium sulphate between times has, under my observation, given the best results.

Stimulants, of which strychnine has proven the most efficient, should certainly not be given until the heart's action begins to show some indication of its weakness. Then it should be administered at about three-hour intervals, the dose being about a 30th to 20th of a grain, and this not given over too long a period. Digitalis has also been proven to be of great value in certain cases.

A hot water bottle should be placed to the feet of all pneumonia patients. This causes a relaxation of the blood vessels of the lower extremities and thereby relieves to some extent the already engorged lung.

Special care and attention should be given to the mouth, nose and throat that they are kept clean at all times.

During convalescence the patient's heart should be looked after, nutritious food given, and the patient not allowed to go to work for several weeks.

The serum and vaccine treatments in this disease have not proven satisfactory, due to the fact that they are worthless and often-times harmful when given before the definite type has been isolated and determined, and then as mentioned at the outset, this disease is more commonly due to a combination rather than a single germ. Therefore, it is almost impossible to obtain a stock vaccine that will be of any value, since little advantage has been gained by the use of autogenous vaccines, and this is certainly the most rational treatment of the two. Of the pneumonia serums, the Type I has been the most satisfactory, but it is to be remembered that few cases of Type I pneumonia will die without the serum.

I shall not mention the treatment of the various conditions that may arise, but in conclusion will say that a restful, quiet room, a sensible, efficient nurse, a sufficient amount of fresh air and a suitable diet and proper care of the bowels will prevent high temperature, heart failure, low blood pressure, insomnia, tympanitis and toxemia in very many cases, and prevention is far better than the treatment of these serious conditions.

CONCLUSIONS

In closing I wish to stress:

1. That broncho-pneumonia is far more common in adults than text books would lead one to believe;

2. The importance of an early diagnosis;

3. The importance of early recognition of complications, especially pus pockets;

4. The free use of the exploratory needle in determining the presence of pus pockets; and

5. A warning against the indiscriminate use of vaccines and serums in the treatment of this disease.

THE CONSERVATION OF MENTAL ENERGY

By Frederic J. Farnell, M.D.,
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In bringing this subject before you for your consideration, it will be necessary to precede my general remarks with the statement of a few facts in regard to the so-called laws of Nature and an attempt will be made to divert your attention for a short while toward another picture of the now much-discussed topic, the value of heredity and its allied subjects. You are all aware how much emphasis and stress is placed upon the fact that all or everything that favors the well-being of our nervous system goes toward the strongest support of our general health. What is this all, this everything? Heretofore, in the study of the processes of evolution it has been assumed quite generally that those laws which govern the animal world also govern mankind, even though it is a well-known fact that "man" holds a most unique position in this world. As a result of these studies, interests have fallen into the numerous expressions now evinced by the school of eugenics. This school bases the laws of inheritance upon the study of the lower animals and plants and then applies them to mankind.

This widespread interest has made people intellectually honest in their anxiety to know how far their physical and mental conditions can influence the physical and mental states of their children, for it is a well-known fact that the average man today has a definite opinion and belief. He firmly believes that any victory, which is really luck nowadays, over his morality, gives strength to his children, and any lapse is detrimental and weakening to his offspring. He may often go further and feel that his athletic training and his high scholastic ability will give his son or his daughter a most superior muscular strength on the one hand or a much easier acquisition of intellectual knowledge on the other.

It is this misconception, to make it emphatic, that has led me to discuss the value of mental energy and demonstrate hastily that human evolution is in relation to plant and animal evolution only up to a certain point and that from then on it is entirely under the influence of laws distinctly its own. This teaching of eugenics has led to most unfortunate results. First, that as long as it is possible to believe that the inheritance which we transmit to our offspring might be modified by our own actions, there is hope. Secondly, however, if we are forced to believe that by nothing that we can do can we influence the inheritance which we hand to our children, there is utter hopelessness. By this view we are told that the inheritance is fixed definitely when we select our wives and husbands and that nothing that we may do subsequently can change the transmission. The choice of a husband or a wife is bound up in very complex social conditions in such a way that it is determined by an indefinite number of artificial factors of which physical fitness hardly plays even a minor part. Organic inheritance can only be controlled by controlling marriages, I grant you that, but marriages will, however, continue to be determined by passion and accident rather than by fitness.

Let me refer briefly to the relation of disease to energy. So often one hears the remark, "He inherits the disease from his father," or "His father was subject to the same trouble." Nothing is more certain than the ravages certain diseases may bring in a future generation, and yet it must be kept clearly in mind that these diseases are not inherited in the same sense as the color of one's eyes or the shape of one's nose. True, they are passed from mother to child; but these diseases are communicable in type, and the child does not inherit them—it "catches it" in just the same way as one might catch diph-

theria or small pox. We never think of saying when one of our children catches measles from a neighbor's child that he inherited measles from a sick friend. Now, the mother most often contracts the disease from the father and the disease circulates in the blood of the mother and as the mother's blood nourishes the child in utero, the mother infects the child and the child is born with evidence of a disease. This illustration is quoted to emphasize that by true organic inheritance is meant the transmission of such characteristics as can be incorporated only in the germ plasma or egg and not any foreign or extraneous matter which attacks the individual who happens to grow that egg or germ plasma.

Alcohol may often be effective on the individual, poisoning the parent and even the germinal cell and thus affecting the next generation, but it is not inherited; it affects the parent one way and the offspring in an entirely different manner.

It was stated earlier in my remarks that the human animal is under the same laws of heredity as our other animals. And yet man is more than an animal, and these characteristics which stand out so sharply in contrast to animal are under a decidedly different set of laws than those of organic inheritance.

The first of these laws is social heredity by which is meant the handing on to the offspring the various accumulated possessions of parents. These accumulations may be structural possessions, jewelry, property, mental, such as intellectual facts or customs and habits, etc., which the next generation uses and yet they are not a part of the germ cell. This form of inheritance is capable of being modified and can be entirely changed by the development of newly-acquired variations. It is this social inheritance that does much for the evolution of our race in giving us the highest attributes of mankind, and herein lies the nucleus of proper adjustment and its conversion into mental energy. These acquired traits, as I say, can be modified or even completely dispelled by education or re-education and these improvements then handed to the next generation. This modification, therefore, is not controlled by the mysterious phenomena of the mixing of germ substances, but it depends upon our conscious efforts and can be modified by improving the conditions of life.

Of the uncertainty of true heredity you are all aware. It would hardly be possible truthfully to say that given two absolutely normal parents, their children would be absolutely normal. The child's inheritance is always problematical; literature is filled with instances of children departing widely from their parents and cases will undoubtedly occur to your own minds where a "black sheep" occurred in a family of exceptionally good inheritance and an unexpected "white sheep" in one of decidedly poor stock, and even two brothers in the same family of entirely different make-up. This must convince one that germinal inheritance is almost as uncertain as the weather.

On the other hand, social inheritance varies little. A child born under a certain environment develops and is influenced by that environment: "When in Rome you do as Romans do;" "In China the Chinese boy flies his kite;" "In America the American boy plays ball, and in Germany he is brought up under militarism." Social inheritance is sure, for it is hardly possible to rear a man in an environment and he not be moulded to it. A child of blue-eyed Italian speaking parents may not have blue eyes, but he must learn to speak Italian if he is brought up by his parents.

You may all recall the Jukes family, noted for the many criminals produced and where the eugenists use the family to illustrate the transmission of organic heredity. The investigator in social heredity can use it to illustrate social inheritance. These children were reared amidst crime, taught to respect it, both consciously and unconsciously. No wonder they were criminals; most any child would be. One occasionally hears of a child from poor stock rising up and amounting to something. Did he rise up in the primary environment? As a rule, no. But it will be noted that something in that child's life brought him into another environment. New ideas and hopes were started, that is, a new form of social inheritance got hold of him.

Having outlined briefly two phases of

inheritance, I shall not attempt to build my individual weighted by both organic and social difficulties. First, we have heredity. Second, there is the individual (who should be regarded as made up of many parts, comprising what is termed mentally "make-up" or "personality"). Third, we have social inheritance. What a great amount of mental energy he has to develop and use properly to live effectively in our community.

This extensive and varied environment that man enjoys has a direct effect upon the man's personality to a marked degree. From the very first of this individual's existence and through the prolonged period of immaturity the play of the environmental stimuli is quite effective in modifying his entire development. He also lives in the midst of intellectual, moral and social stimuli which are active factors in his development. As he grows in years, his ability to look before and after causes him to live in a future and a past as well as at present. Through tradition and history he becomes an heir to all ages. It is this mental life in its growing that does so much mischief to our young adult life, for this piling up upon the past goes on without relaxation. It follows us at every instant; all that we have felt, thought and willed from our earliest infancy is there, leaning over the present, which is about to join it in the past. Our cerebral mechanism is so arranged as to drive back into the unconscious almost the whole of the past and to admit beyond the threshold only that which can throw light upon the present situation or further the action now being prepared. Thus our character is a condensation of the history we have lived from our birth; nay, before our birth for prenatal disposition and the parental influence may also effect our development.

It is true we only think of a small part of our past, but it is with our entire past that we desire, will or act. The whole of our past is made manifest in its impulse; it is felt in the form of a tendency, but only a small part of it is known in the form of an idea.

Is it at all a surprise the power our environment must have upon the development of our personality; it might outweigh completely organic inheritance. A relatively poor inheritance with excellent environmental conditions might produce better results than a good inheritance under poor conditions. Environment will bring out through the personality hereditary possibilities and yet these possibilities may remain latent or be modified in their growth by recognizing what environmental stimuli might do. It is this early life and education which has so great an influence upon the shaping of a personality and causing the deviations of character into antisocial or asocial disorders.

As you will observe at the earliest age in infancy, for we can not go back in our attempt at readjusting the birth, alternative factors which might have taken place are few, but as one grows and years roll by the alternatives are many, due to the increasing complexity of the organism. These complex organizations are modified by conflicting stimuli, intelligence and inhibitions and what he may become will depend upon responsibility, self-control or will. By responsibility is meant one's ability to respond to rational, social, moral, ethical and intellectual impulses and inhibit the irrational. Mental impulses which influence our behavior are not merely remembered experiences, but words, suggestions, ideas, received from others and the memories and suggestions of our own thoughts. Social, moral and ethical impulses are not merely those which rise from love of reward, fear of punishment, desire for praise and fear of blame, but also from that deep-seated instinct to do good which may reach even to self-sacrifice.

The will is the sum of all mental processes such as memory, reason, etc., which go to regulate our behavior. Just as our memory and reason can be trained to accomplish results, so "will" can be trained to inhibit or regulate our behavior. How much more advantageous would be our educational systems should they train the "will" as energetically as they train memory and intellect? It is "will" that calls forth all capacities and powers, and yet it does not create nor produce these powers. William James, the psychologist, once said, "We have reservoirs of power which

we rarely tap, great energies upon which we seldom draw and that we habitually live upon a level which is far below that which we might occupy." It is true, as has been rightly said, "We shall not live to see the day when human inheritance is greatly improved, though that time will undoubtedly come; but in the meantime we may console ourselves by the thought that we have many half-used talents, many latent capacities, and although we may not be able to add to our inheritance new territory, we may greatly improve that which we have."

What we need in our educational system is some scheme which will train the powers of self-discovery and self-control. Easy lives and a good environment will not arouse dormant powers. It takes much stress and severe strain to make us acquainted with our hidden selves, to rouse that sleeping giant hidden within us. How often one hears it said that the worthless son of worthy parents is a mystery, with the best heredity and environment they amount to nothing, whereas the son of a blacksmith or a peddler becomes a great man. The inheritance may have been equal to the former, but the environment was probably better not because it was more pleasant, more beautiful and more refined—on the contrary it was less so—but because there was much more responsibility and self-discipline present to readjust and fix his personality.

Some might say that self-control depends upon inheritance, that strong self-control or weak self-control depends upon heredity. It is true that one man may be born with a potentiality for self-control and another may make it, but in all men this potentiality becomes only actuality through development. Most individuals lack self-control. Is it due to heredity or an arrested development? To charge defects in development removes them from any possible control and helps to make men more irresponsible as well as excusing them from making good.

To hold everything as predetermined and nothing as self-determined and that all acts and traits are fixed, is not in accord with evidence and not to my mind good science.

Is it not a fact that the possibilities of our inheritance depend for their relaxation upon development, upon activity in response to stimuli? Is it not a fact that the behavior of an individual can be modified? Is it not a fact that experience, intelligence and will are factors in human behavior? It is true that our capacities are much greater than our habitual demands upon us. It is a fact that our responsibility energizes our lives and gives strength to our mental energy. And conversely it is true that shifting all responsibility from the individual to heredity, or that which is beyond one's control, is helping to make man irresponsible in his entirety. It is not what we are born, but what we become after birth that makes us men; it is not the power of babes, but what civilization makes of these powers that constitutes the existence of mankind. Herein lies the preservation of mental energy. The future is full of hope.

59 *Blackstone Bldg.*

AUTHORS' ABSTRACTS

Medicine

Post-influenzal Alopecia. H. H. Hazen, Washington, D. C. The Journal of the American Medical Association, Vol. 72, No. 20, May 17, 1919, p. 1452.

Alopecia following any severe febrile affection is common. The alopecia following influenza unquestionably belongs in this group and is not a separate and distinct disease. It is still questionable whether the hair loss is due to interference with nutrition or to a toxin acting directly upon the hair papillæ. Most writers agree that a pre-existing seborrhea makes the loss of hair more certain, a point that I do not believe as a result of my studies.

Fifty patients were studied, three men and forty-seven women, although probably the trouble is equally common in both sexes. Practically all of the patients were young. The more severe the infection and the higher the fever, the more apt the hair is to fall. The average time elapsing from the onset of the infection to the beginning of the alopecia was nine weeks. The amount of hair lost varied greatly, from a small amount to practically all, but the average was from one-third to one-half. The greatest loss of hair was over the anterior and parietal portions of the scalp and the alopecia was of the diffuse type. Generally the remaining hair was abnormally dry. Without exception every patient developed plenty of new hair in a short space of time.

The treatment is simple. First, cleanse the scalp of seborrhea by means of a sulphur ointment: second, keep the hair oiled; third, massage the scalp daily until there is a brisk tingle;

and fourth, use a stimulating tonic, of which salicylic acid in bay rum is a good example. There is no excuse for cutting the hair, except to make the ends even; and there is no excuse for any form of elaborate electrical or light treatment.

Modern Medicine as a Gauge of Civilization. W. C. Braisted, Washington, D. C. Modern Medicine, Vol. 1, No. 1, May, 1919, p. 24.

In the past the progress of medicine kept pace with or exceeded that of society. Doctors were learned and often contributed to civilization more by their mathematics or philosophy than by medicine, but in general medicine was a matter involving the physician and his own patients only. Modern medicine is distinctly social. It considers the sick not merely as individuals but as members of the body politic in their relation to each other. Vital statistics afford a practical illustration of service on social lines. The state which neglects public health is a backward state: the physician so engrossed in his private practice that he can not study and report his cases in a way to warn or protect the community and to further the development of preventive medicine and scientific knowledge for the betterment of the Nation is not living up to his civic and professional obligations.

As the diagnosis and care of a single malady depends upon exhausting every means to discover the significant symptoms pointing to the cause, so public welfare demands the discovery, reporting, tabulation and analysis of all the facts connected with the public health. Hookworm and malaria are shining examples of infections having a wide social bearing. Our future as a Nation depends upon the proper handling of these general problems; and by painstaking and accurate reports every physician can and must have a part in their solution.

The Maloney Method of Re-Education in the Treatment of Chorea. Morris Grossman New York, N. Y. New York Medical Journal, Vol. 109, No. 20, May 17, 1919, p. 842.

There are two types of cases: one in which infection and emotional accidents are to be blamed for the onset of the disease, the other in which such accidents are not detectably implicated. There also seem to be two types of patients: those who before the disease was observed were noticeably restless and excitable and those who did not markedly differ from the average child. The former more often dated their affliction to emotional accidents, the latter more often trace their onset to an infective process.

No anatomical lesions have as yet been evolved to afford a definite structural foundation for the symptoms; neither has a specific organism or toxin been isolated. However, correlation of the facts at our disposal strongly suggests that the clinical phenomenon is the result of a bacterial toxin acting upon the cortical tissues. Rheumatism, endocarditis and chorea seem to be closely associated in from 20 to 25 % of the cases.

Chorea, even when mild, is sufficiently serious to warrant careful handling. The patient should be confined to bed; mental and intellectual efforts should be restricted entirely. The diet should be bland; fluids, especially water can be given freely. Tepid douches or continuous warm packs are soothing. Fowler's solution and in rheumatic cases salicylate of soda may benefit the patient.

Only breathing and relaxation exercises are indicated in the early stages of the illness. Later exercises to correct inco-ordination; resistance exercises to increase tone and maintain continued tonic contraction of the muscles are of service. Then the readjustment of faulty attitude by gradual transition from the recumbent to the erect posture; and finally the use of various toys and games to encourage freedom and precision of movements.

Group Medicine. Michael M. Davis, Jr., Boston, Mass. American Journal of Public Health, Vol. 9, No. 5, May, 1919, p. 358.

In medicine, within a generation, specialization has developed enormously. We may hardly claim to have fifty-seven varieties of specialists, but we have a number that is bewildering, when there is no force to bring them together as a working whole. The factor of organization in medicine is as yet relatively undeveloped.

Once upon a time the physician had to depend chiefly upon his eye, ear and hand. Now the investment required for a complete equipment for all branches of medical and surgical work is beyond the reach of any individual doctor; and complete equipment even for any one single branch is beyond the reach of most. The hospital or the dispensary provides and administers equipment for joint co-operative use. In the hospital and the dispensary there is not only organization of equipment but also organization of skill. This means group medicine.

Group medicine can best be studied, as a public or semi-public institution, in the great teaching hospitals and dispensaries of the country. There are also institutions which have been founded particularly for the practice of group medicine. Most notable is the Mayo Clinic, of Rochester, Minn. The idea of group medicine is simply the application in the field of medical service, of ideas which have long ago demonstrated their value and necessity in other branches of human activity, notably the business world. Certainly the time has come when, on the one hand, the coming together of physicians for organized practice should be permitted both by law and by public opinion. A group medicine plan is applicable not only to a large city, but also to the small communities.

Theories Regarding Blood Pressure. Harold W. Dana, Boston, Mass. The Journal of the American Medical Association, Vol. 72, No. 20, May 17, 1919, p. 1432.

Our present conceptions regarding blood pressure need revision, in that facts do not support the accepted interpretations regarding in particular the significance of an elevated systolic or diastolic pressure. Systolic pressure may be elevated even to 200 mm. without signs or symptoms of disease and without any increased tendency to apoplexy or to renal disease. Diastolic pressure, if the circulation be otherwise normal,

should maintain its normal ratio of 2.3 with the systolic pressure.

The writer believes that increased systolic pressures indicate the presence in the circulating blood either of unexcreted putrefactive products absorbed from the intestine, from the kidneys, from focal infections in the dental alveoli, the nasal sinuses, the tonsils, the genito-urinary tract, or of secretions in abnormal amounts from the glands of internal secretion. This is also held to be true of the diastolic pressure when it does not maintain its normal ratio to the systolic. Lowered systolic and diastolic pressures are due to deficient delivery into the blood stream of pressor substances or increased delivery of depressor substances. Neither systolic nor diastolic pressure gives any indication regarding renal or myocardial condition. When hypertension and cardiorenal disease occur together, they are believed to be secondary to the same primary causes mentioned above, and not secondary one to the other.

The Salicylates. X. The Specificity of Salicylate in Rheumatic Fever. Paul J. Hanzlik, R. W. Scott and P. C. Gauchat, Cleveland, Ohio. The Journal of Laboratory and Clinical Medicine, Vol. 4, No. 3, December, 1918, p. 112.

The alleged specificity of salicylate in rheumatism was tested by comparing the therapeutic effects of agents chemically different from, but pharmacologically similar to, salicylate. Patients suffering with rheumatic fever were at first given combinations of an antipyretic (quinin) and an analgesic (morphine), using rather large doses in accordance with the principle of massive doses of salicylate in this condition. If no relief followed, salicylate was administered to "toxicity" in the usual way. When complete relief followed the administration of the non-salicyl combinations, no further administration of salicyl was used, and from this it would logically follow that salicyl is unnecessary and its alleged specificity in rheumatism is unfounded. This series of patients was also compared with a series receiving salicylate alone without previous medication.

The acute symptoms of rheumatic fever were found to be promptly and effectively relieved by combinations of antipyretics and analgesics chemically different from salicylate. If to this are added the favorable reports of others obtained with foreign proteins and rest alone and the numerous recurrences of the disease after repeated treatment with salicylate in large doses then salicylate possesses no thoroughly demonstrated specific action in rheumatic fever. The view expressed by the authors is that salicylate is no more than a symptomatic remedy, which can be safely administered in very large doses, and represents a fortunate combination of both antipyretic and analgesic qualities. The unwarranted and promiscuous use of the drug should be restrained, since it has been shown that salicylate possesses an injurious effect on the kidney and its functional efficiency.

Meningitis. Hyman I. Goldstein, Camden, N. J. New York Medical Journal, Vol. 109, No. 18, May 3, 1919, p. 760, and May 10, 1919, p. 803.

Differential diagnosis of meningitis is very important and should be made early, so that antimeningococcic serum (polyvalent) can be given with the hope of saving life in cases of meningococcic meningitis (epidemic cerebro-spinal meningitis). It is important to know that the early diagnosis can be made certain by the thorough examination of the patient, and that atypical cases may occur.

The serum should be given intraspinally and intravenously, because in the pre-meningitic stage the blood contains the meningococci just as in any other septicemic (bacteriemia) condition and the actual metastatic involvement of the meninges may thus be warded off. Serum should be given daily for at least four doses. It does no good when administered subcutaneously. It is advisable often to use the serum of several firms, as in some cases no favorable result is obtained because of different strains of meningococci.

Hexamethylenamin or urotropin requires an acid medium for its action and the cerebro-spinal fluid is alkaline. Injection of oxygen or air intrathecally may be tried. Early lumbar puncture, and frequently repeated, does good even in tuberculous cases, and in those other types of meningitides for which there is no specific serum.

Dial (Ciba); barbital; morphine and atropine hypodermically ease the pain and afford some rest and sleep for the patient. Caffeine and brandy may be given for stimulation. No strychnine should be used.

The examination of the cerebro-spinal fluid is to be done in every case where meningitis can not be ruled out.

Differential diagnosis must be made from tuberculous meningitis, typhoid fever, sinus thrombosis, encephalitis lethargica ("nona"), malaria, hysteria and acute anterior poleomyelitis (Heine-Medin's disease).

Other important signs and symptoms are the Kernig sign, Brudzinski's sign, Trousea's sign, Squier's sign, contralateral reflex — associated with or without early projectile vomiting, slow pulse, and severe headache.

TROPICAL DISEASES AND PUBLIC HEALTH

THE PREVENTION OF SPIT-BORNE DISEASES

By Ennion G. Williams, M.D.,
Commissioner of Health of Virginia,
Richmond, Va.

Among the preventable communicable diseases some require for their control community action, others demand attention to the personal habits of the individual. To make this clear, the filth-borne diseases, such as typhoid, can not be prevented absolutely without definite action on the part of the community, safeguarding its water supply and requiring sewerage or sanitary privies. To the contrary, the spit-borne diseases demand for their prevention the action of the individual.

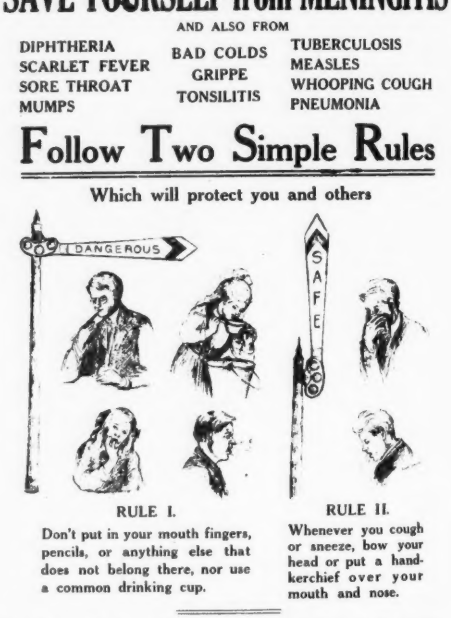
No law, however carefully drawn or supplied with penalties for infractions, will serve to make every individual cover his nose or mouth when he coughs or sneezes; and unless this result is achieved the air will be sprayed with droplets containing infection from the man who does cough or sneeze into it.

When these droplets get into the air and are there held in suspense, it is virtually impossible to prevent some other individual from inhaling the infectious droplets or getting them into the eye, there to travel through the tear duct into the respiratory tract. As a consequence, the health officer can not hope to make rapid progress in the prevention of influenza, measles, whooping cough and the other spray-borne spit diseases. The progress is necessarily slow; it can be accomplished only by education, and the habits of generations do not yield rapidly.

On the other hand, the prevention of non-spray-borne spit diseases offers a less exacting problem, and one that promises a little more speedy solution. This group of diseases, which includes diphtheria and scarlet fever, has virtually no coughing nor sneezing; and, to be infected, the secretions from the mouth or nose of a case or carrier would actually be carried into the nose or mouth of a victim. The germ is not suspended into the air like the spray-borne germs.

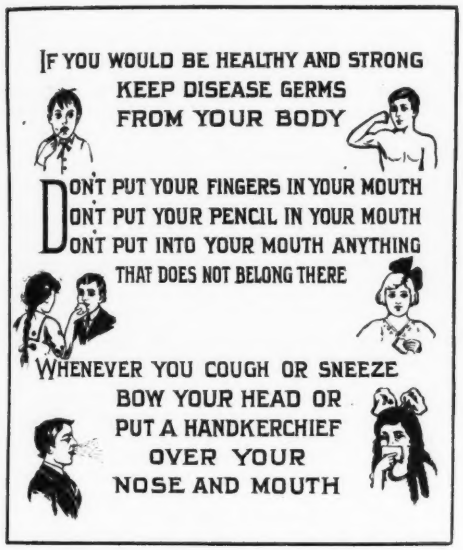
This being true, it would seem that the problem of control is not so difficult. The incidence of these diseases can be almost mathematically reduced when children are made to give up the bad habit of putting into their mouths fingers or pencils that might be soiled by the spit of others, and the particularly bad habit of using a common drinking cup. But to be effective these habits must be avoided utterly, for there are several times as many carriers and mild unrecognized cases as there are clearly defined and recognized clinical cases, so that what may not seem to be a source of danger might actually be a menace.

As the chances for getting the infection


SAVE YOURSELF from MENINGITIS
AND ALSO FROM
DIPHTHERIA
SCARLET FEVER
SORE THROAT
MUMPS
BAD COLDS
GRIPPE
TONSILITIS
TUBERCULOSIS
MEASLES
WHOOPING COUGH
PNEUMONIA
Follow Two Simple Rules
Which will protect you and others
DANGEROUS
SAFE
RULE I.
Don't put in your mouth fingers, pencils, or anything else that does not belong there, nor use a common drinking cup.
RULE II.
Whenever you cough or sneeze, bow your head or put a handkerchief over your mouth and nose.
The Germs of these Diseases are spread through the secretions of the mouth and nose of sick people and carriers.
POSTED BY THE STATE BOARD OF HEALTH.

is reduced, the incidence of the diseases should be reduced proportionately. As with the safety-first movement that has accomplished such wonderful results, the prevention of diseases like the prevention of accidents is accomplished by the avoidance of small risks. There is small risk in putting the fingers or common cups to the mouth as there is small risk in stepping off or on a moving car, yet when these risks or the chances of incurring accidents are reduced, the incidence of disease or accidents is reduced in the same proportion. In an effort to reduce the spit-borne diseases, the State Board of Health sent to the school teachers of Virginia at the beginning of the sessions 1916-1917-1918 placards, as shown in the accompanying cuts, and urged the enforcement of these simple principles, and at the same time special efforts were made to enforce law prohibiting the use of the common cup in the schools.

The following tables show the morbidity and mortality from diphtheria and scarlet fever for the years the statistics are available. The asterisks mark the year following the first sending out the placards, 1916, the fiscal year beginning with October:


IF YOU WOULD BE HEALTHY AND STRONG
KEEP DISEASE GERMS
FROM YOUR BODY
DON'T PUT YOUR FINGERS IN YOUR MOUTH
DON'T PUT YOUR PENCIL IN YOUR MOUTH
DON'T PUT INTO YOUR MOUTH ANYTHING
THAT DOES NOT BELONG THERE
WHENEVER YOU COUGH OR SNEEZE
BOW YOUR HEAD OR
PUT A HANDKERCHIEF
OVER YOUR
NOSE AND MOUTH

To the Teacher: Please post this card in a conspicuous place in your school-room where the pupils will see and read it. Please explain to the children why these rules are necessary; tell them how communicable disease is spread by germs that come from the bodies of others and how it can be prevented if we keep germs away from our mouths and noses.

If you can get your pupils to practice these simple rules you will find a sharp decrease in the amount of sickness and in the consequent loss of time from school. A very good way of enforcing these rules is to have a heading "Personal Hygiene" on your daily record and to mark children for putting their fingers or pencils in their mouths, for careless sneezing and coughing, etc.

Very respectfully,

ENNION G. WILLIAMS,
State Health Commissioner.

SAVE YOURSELF
FROM
DIPHTHERIA
SCARLET FEVER
SORE THROAT
MUMPS
BAD COLDS
GRIPPE
TONSILITIS
MENINGITIS
SPANISH GRIPPE
TUBERCULOSIS
MEASLES
WHOOPING COUGH
PNEUMONIA
Follow Two Simple Rules
Which will protect you and others
DON'T
SNEEZE OR COUGH OVER ANY ONE
DON'T PUT PENCILS IN MOUTH
DON'T PUT FINGERS IN MOUTH
DON'T DRINK OUT OF COMMON DRINKING CUP
DO
COUGH OR SNEEZE IN HANDKERCHIEF
OR BEND HEAD
RULE 1
Don't put in your mouth fingers, pencils, or anything else that does not belong there, nor use a common drinking cup.
RULE 2
Whenever you cough or sneeze, bow your head or put a handkerchief over your mouth and nose.
The Germs of these Diseases are spread through the secretions of the mouth and nose of sick people and carriers.
VIRGINIA STATE BOARD OF HEALTH

	Diphtheria		*Scarlet Fever*	
	Estim'd Cases	Deaths not recorded	Estim'd Cases	Deaths not recorded
1908-09	5,818		3,625	
1909-10	6,279		2,653	
1910-11	6,812		2,323	
1911-12	6,544		2,231	
1912-13	4,757		2,180	
1913-14	5,179		1,849	
1914-15	4,651	282	2,002	21
1915-16	*5,854	288	*1,634	28
1916-17	3,466	198	1,330	17
1917-18	2,382	169	883	27

THE EARLY RECOGNITION OF MENTAL DISEASE*

By Louis E. Bisch, M.D., Ph.D.,
Recently Director, Psychiatric Division,
Fifth Naval District,
Asheville, N. C.

It is not an uncommon experience for the psychiatrist in civil life to have a case brought for consultation when the mental symptoms are already so well marked and firmly fixed that very little, if anything, can be done from a treatment point of view. Occasionally this occurs in the Navy, but such instances are rare as compared with the situation outside the Service. I do not mean to imply that all mental cases are amenable to treatment, but I do wish to stress the fact that the earlier a case is recognized the greater are the chances of doing something that may be of benefit and the less the probability of the case's becoming so unmanageable as to demand permanent institutional care.

In the Service, a man automatically is seen more often by a medical officer than he would be in civil life where visits to the doctor largely depend upon his own desire and initiative. The treatment of venereal disease and the prevention of the same are particularly well looked after in a military organization. Surgical and other general medical conditions also receive careful attention. However, psychiatry does not seem to be emphasized quite in the way it should. This no doubt is partly due to a feeling among physicians in general that abnormal mental mechanisms are quite hopeless propositions from a therapeutic viewpoint; partly because some consider psychiatry as a specialty rather alien to the rest of medicine; and largely due, perhaps, to the fact that so little time is given to the study of mental diseases in the average medical school that a man is graduated having had but few lectures and clinical demonstrations on the subject, and often with but slight sympathy for the work simply because he has not had sufficient opportunity to become acquainted.

Psychiatry has made rapid strides in the last few years and the great war has demonstrated over and over again what can be done when the surgeon and the internist—one might even include the laboratory technician—co-operate with the mental specialist. Instances of men suffering an injury, or of showing unusual medical symptoms, or even a chance positive Wassermann, have revealed through consultation with the psychiatrist, and a detailed neuropsychiatric examination which followed, that the disease processes were fundamentally neither surgical nor medical, but could be classified distinctly as neurological or mental. It has further been shown that frequently what might be called "trivial" symptoms were the forerunners or early signs of grave mental disorder.

It is the purpose of this short paper to mention some of these beginning signs and to illustrate by summaries of case histories how subsequent extended examinations brought many unsuspected symptoms to light and proved the subject to be suffering from a well-defined clinical entity that demanded immediate disposition.

CASE REPORTS

Case No. 192.—The patient was referred to the Psychiatric Division by his regimental surgeon because he seemed to be suffering from poor memory and was unable to follow directions. He would frequently become confused and could not find his way about the station.

He gave a very detailed history concerning his past life and, apparently, he had held several responsible positions in a clerical line before enlistment. However, considerable euphoria was present and psychological tests revealed marked memory and concentration defects.

Physical examination showed Argyle-Robertson pupils, exaggerated reflexes and a four-plus Wassermann reaction.

The diagnosis was "Dementia Paralytica."

Case No. 236.—This man wrote a letter to the commanding officer requesting that he be allowed leave and a small sum of money in order to work on an invention of his which he claimed would be of great value to the Navy. Part of the letter seemed rather far-fetched and the man was referred for examination.

He talked in a coherent and relevant manner, but was very voluble and euphoric. He suffered from marked delusions of grandeur which were fairly well systematized and he had no insight into his condition.

The right pupil was larger than the left, but both reacted promptly to light, although their

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*Published by permission of the Navy Department.

The cases outlined in this paper were diagnosed in accordance with the existing nomenclature in use in the U. S. Navy.

excursions were rather small. There were fine tremors of the facial muscles and exaggerated reflexes. Test words revealed ataxia of speech.

Here again the diagnosis was clearly "Dementia Paralytica."

Case No. 272.—While a general court martial prisoner, and in a routine way, psychological tests made on this man showed marked confusion and defects of memory and concentration. He talked about staying over leave in a very simple and naive fashion, but claimed that he went to New York to have a good time deliberately and that he was fully aware of what he was doing.

While confined in the brig, the patient subsequently had a grand mal attack two days later, which was observed by witnesses. He walked about the cell in a dazed fashion and then suddenly fell to the deck unconscious. Following this there was general tonicity of the whole body with frothing at the mouth.

Later the man admitted that he had four similar attacks previously and that for the past ten years he had suffered from slight dizzy spells. History showed that his mother suffered from "spells of weakness" and that his father had been a chronic alcoholic and had deserted the family.

The diagnosis in this case was "Epilepsy."

Case No. 683.—The patient was referred by the officer in charge of the Gunner's Mate School because he complained of having pains in his head, of dizziness, and of being unable to study.

The patient stated that in 1917 he was struck in the back of the head and was in an unconscious condition for about two weeks. About five months after this attack he was again rendered unconscious for about two hours from another blow on the head. At the time of examination he complained of being unable to study and of having a poor memory. He also stated that he had frequent attacks characterized by a feeling of dizziness, his head "swimming," and things becoming "black" before his eyes. These attacks lasted but a few minutes and the patient was able to recover quickly and unassisted.

The patient was kept under observation for about one week in the Psychiatric Ward. He was found to possess considerable emotional instability and a marked lack of memory. He had a dull and apathetic expression and his general mood was one of depression. His conversation was flighty; he jumped from one subject to another at any suggestion given him. He was easily fatigued.

Mental tests revealed considerable deterioration. His mental age by the Stanford Revision of the Binet-Simon scale was only seven years, although actually 26 years old. His performance on intelligence tests was of an irregular type. He showed memory and concentration defects, and was easily confused.

The diagnosis made was "Petit Mal due to Trauma."

Case No. 508.—The patient was selected at mast where he was up for shirking duty, taking letters from the "Dead Letter Office" and for thieving.

During his first enlistment in the U. S. Navy he received a "Bad Conduct Discharge" for breaking liberty after six months' service.Says that later, after a five months' enlistment in the British Army, he was discharged for "strange conduct." He admits about seven arrests while a civilian and these usually for stealing train rides.

His entire past history revealed him to have led an irresponsible and wandering life, with no ambition nor planfulness. His native intelligence appeared to be very poor and he talked in a simple and naive fashion. During the examination he frequently amplified the subject of discussion by referring to experiences of his own in a childish manner, with a certain amount of eagerness and boastfulness. It was frequently necessary to coerce him to order to make him stick to the subject. He was inattentive and rambling throughout. He did not appreciate the seriousness of his surroundings nor his responsibility in the duties to be performed.

Mental tests revealed marked defects in memory, imagination, attention and reasoning ability. All his emotional reactions were inadequate. He frequently gave up in a helpless, disinterested way, but even upon urging and after given aid his performance of psychological tests was poor.

The patient's family history revealed him to be descended from defective stock, his father having been a chronic alcoholic and his mother having been confined in an insane asylum, while one sister was said to have been a prostitute and another brother said to have been shiftless.

The patient was not merely ignorant, but unquestionably inferior. He showed certain "stigmata of degeneracy."

The diagnosis was "Constitutional Inferiority."

Case No. 281.—This patient was selected for intensive examination in the Incoming Detention Unit by the Psychiatric Division because he made a very low score on "Preliminary Psychological Tests." On the Stanford Revision of the Binet-Simon test he measured eight years and six months mentally. He talked in a low and monotonous tone of voice, his reactions were exceedingly slow, while his motor movements were sluggish. Throughout the examination his facial expression remained unchanged and there seemed to be decided emotional inadequacy present. He co-operated to the best of his ability. Gave a history of not having progressed well in school. He displayed many stigmata of degeneracy.

His diagnosis was "Constitutional Inferiority."

Case No. 871.—The patient refused to stand watch while a prisoner-at-large. When examined he showed a dull and apathetic expression. Physical examination revealed stigmata of degeneracy. His first two summary courts were given to him for being "Absent Without Leave" and the present summary court martial for refusing duty. History revealed the fact that he had practically no schooling. Examination showed him to be illiterate and feeble-minded. On the Binet-Simon test he gave a mental age of eight years. It was evident that he had little appreciation of his responsibilities or military duties.

He was diagnosed "Moronity."

Case No. 272.—The patient was referred for examination because he did not get along very well with men in his company and was continually teased.

Upon direct examination he was found to be untidy in appearance and his facial expression was dull and apathetic. He co-operated to the best of his ability, but his reaction time was very retarded and it was sometimes difficult to make him understand the simplest directions. His retention of ideas was fairly good, but his rote memory was exceedingly poor. Logic and reasoning powers were very limited. His conversation and general manner were very childish.

Psychological tests showed him to have a very low mentality and that he was an "Imbecile of the Congenital Type."

Case No. 357.—The patient was referred for examination because of creating a disturbance in his bungalow at night.

More extended review of the case showed that he was suffering from hallucinations of sight and hearing, for he stated that the men in his bungalow peered at him through windows and that he heard them making remarks about him such as "Hit the deck." The patient was disoriented for time, place and person and showed a mild persecutory trend which was not systematized. He showed marked psychic and motor unrest and considerable mental confusion was present. His memory for remote events was good, but for recent events impaired.

He was diagnosed as suffering from a "Manic-Depressive Psychosis."

Case No. 324.—The patient was referred by his company commander because he was known in the company as a peculiar individual.

When questioned he said: "I want to get acquainted with the boys—mix up with the toughest and talk to them. I want to get into intelligence work," etc. He believed himself qualified for a higher rating, but there was nothing to justify even recommendation for promotion. In fact, investigation revealed that he was very dull in performing his duties and decidedly lacking in concentration and adaptability. Throughout the examination he rambled in his conversation and was very circumstantial. His sensorium was crowded with vagaries of various sorts. No definite delusions could be made out, but he was distinctly psychopathic, egotistical and eccentric.

A diagnosis of "Constitutional Psychopathic State" was made.

Case No. 137.—The patient was referred by his regimental surgeon because he appeared to be depressed. Upon examination he was very resistive and "shut in" and it was difficult to gain his co-operation. He had many somatic delusions—especially with reference to the sex organs—and said he had discovered that he was not a citizen of the United States because he had passed an officer who did not return his salute. He stated also that when in training at another camp he had been sexually assaulted three times by three different men when he was asleep and that he knew this had happened only because he heard his shipmates talking about it the following day.

He was diagnosed "Dementia Praecox of the Paranoid Type."

Case No. 240.—The case was referred by the regimental surgeon because the patient had written a letter home stating that he thought a condition of "mental suffering," which he had had previously, was now returning.

When questioned he said he could not put his symptoms into words, but further examination revealed the fact that he was harboring suicidal ideas, was worrying because he did not think he was measuring up to the expectation of his parents, and he was much disturbed because he had masturbated when a child. At times he would have periods of extreme mental confusion in which he could not put his mind to his work and these were accompanied by marked depression.

He had been treated in civil life for this condition without improvement and he stated that association with other men and the routine of service made him worse.

He was diagnosed as suffering from a "Psychoneurosis of the Anxiety Type."

Case No. 144.—This man voluntarily interviewed the medical officer of his unit and stated that he was extremely worried because he had unnatural sex desires which he was afraid he could no longer control.

He stated that he had practiced Sodomy in his earlier years, but he claimed that when he became old enough to realize the seriousness of this practice he had discontinued it himself. He had battled with himself continually ever since that time.

The intellectual development of the patient was normal, but he had many emotional complexes with marked sex coloring. He was decidedly neurotic, emotionally unstable, and subject to periods of excitement and anxiety.

This patient was diagnosed as "Psychasthenia."

Case No. 767.—This patient was referred by his regimental surgeon because he complained of chronic pain in the left hip, for which no organic basis could be made out. He stated that because of the pain he was unable to do his work properly, that it had made him nervous, and that he was suffering from insomnia. He also stated that he was troubled with headaches, backaches, twitching of the facial muscles, irritability, restlessness and palpitation of the heart.

History showed that the trouble first began about three years previously and that he had been under treatment by several doctors in civil life. He was a decided neurotic type—suggestive, introspective and hypochondriacal.

Observation and repeated examinations revealed no pathology.

The diagnosis made was "Neurasthenia."

Case No. 709.—This man was referred by the medical officer of his unit because he complained of nervousness. He stated that the slightest exertion exhausted him and that his heart would beat so fast that he became frightened over it. He said that when wrestling or running he became extremely excited.

When questioned the patient's whole body began shaking with a course tremor. No organic basis for the man's complaints could be discovered.

He was diagnosed "Neurasthenia."

The foregoing cases are fairly typical of the psychiatric material one finds in the Service. They were selected from about

two thousand cases in which intensive psychological, neurological and psychiatrical tests were made. It is to be noted that patients were sent for various complaints and usually the condition from which they actually suffered and which they were finally diagnosed was not suspected in the beginning.

As the sources of supply of neuro psychiatric material would necessarily have to be limited if confined only to cases sent by regimental surgeons — since many of the early symptoms of mental disease do not come to the notice of the medical officers in a routine way—it was considered advisable at the Naval Operating Base at Hampton Roads and at the St. Helena Training Station to distribute a printed sheet to all company commanders on which were listed a number of behavior characteristics which might form a basis by which to refer cases for intensive examination. These characteristics were as follows:

1. Resentfulness to discipline or inability to be disciplined.
2. Unusual stupidity or awkwardness in drills or exercises.
3. Inability to transmit orders correctly.
4. Personal uncleanliness.
5. Criminal tendencies.
6. Abnormal sex practices and tendencies, including masturbation.
7. Filthy language and defacement of property.
8. Distinct feminine types.
9. "Bed wetters."
10. Subjects of continual teasing or ridicule.
11. Queer, peculiar behavior.
12. All recruits who persistently showed the following characteristics: tearfulness, irritability, seclusiveness, sulkiness, depression, shyness, timidity, antisocial attitude, overboisterousness, suspicion, dullness, sleeplessness, sleepwalking.
13. Chronic homesickness.

It was strongly recommended that whenever a medical officer noted any suspicious or doubtful signs or symptoms of nervous or mental disease that the case be gone over from a purely psychiatric point of view. Also it was advised that all cases where no apparent pathology existed be likewise subjected to a similar procedure.

Mere dullness in answering questions may mean a fundamental feeble-mindedness while sluggish pupils may be the first and only signs of early derangement of the central nervous system. Careful and detailed examination should always be made from all possible points of view, for there is no doubt that more errors of diagnosis occur through carelessness than through lack of knowledge.

206-208 *Haywood Building.*

PREVENTIVE MEDICINE AS APPLIED TO MENTAL DEFICIENCY IN MISSISSIPPI*

By Thomas H. Haines, M.D.,
Scientific Adviser to Mississippi Mental Hygiene Commission,
Jackson, Miss.

Mississippi needs a colony for the feeble-minded. There are now only eleven states, since Tennessee has made provision for the feeble-minded, which have not state schools, colonies, or other arrangements for the scientific management of the feeble-minded. Of these states Mississippi is one of the five with over a million population which have no state institution for that purpose. The feeble-minded are a class which, without care, furnish us with a great many of the problems which occupy our courts and our charity workers.

Mississippi expects such an institution to be provided by the Legislature of 1920, and she expects the physicians of the State, with their vision of the problems, to lead in this movement. The physician is in a position to see the effects of the propagation of defective stocks upon communities and the great expense of it. He knows, from his training and from his practice, that the laws of heredity work infallibly and that defective nervous systems in fathers and mothers produce the same kind of defect in children. You gentlemen of the medical profession in your communities all over the State of Mississippi know of Kallikaks and Jukes and Hickories who are costing your communities much money, wasting the property and lives of citizens, because they have not common sense to guide themselves as citizens, and are having large families of children who will do the same things as long as they live.

The medical man is in a position to appreciate the difference between insanity and congenital deficiency. Few of us, hap-

*Read before the Mississippi State Medical Association, Hattiesburg, May 14, 1919.

pily, are so ill-informed as the county health officer who, in visiting the almshouse with the State Prison Inspector recently, said, when the State Prison Inspector pointed out a feeble-minded man: "Oh, no, he is not feeble-minded. I know, to my certain knowledge, that he has been that way for the past thirty years." But the laity are not informed upon this matter. They believe that our Hospitals for the Insane are places for the feeble-minded. They have not the vision which points to the Hospital for the Insane as being a place where the insane should be treated for recovery. They can not see that the greatest function of the State Hospital is to reach out into the community and, through the medical profession, extend its aid in preventing mental disease just as our Public Health Department is endeavoring to prevent malaria, typhoid fever, gonorrhea and syphilis. They have not caught the vision that the State's money spent upon the insane is really intended to be money spent in preventive medicine. It is important that every medical man should be a propagandist in this field.

Much less do they see that prevention of mental defect is a distinctly different problem and that it can not be handled successfully by the State Hospital for the Insane. They do not see, as you gentlemen can, that our criminals, our prostitutes, and our dependent children, and our poor farm inmates are very largely the result of the in-breeding and carrying on of defective nervous systems, and that the way to prevent much of the crime, immorality and dependency of the community today is to prevent this class of persons from propagating. The medical men of Mississippi are in a position to inform the people that two-thirds of the feeble-minded children who are born are such because their parents were either feeble-minded, epileptic, insane, syphilitic, or alcoholic. You are in a position to inform them that these feeble-minded persons are very productive; that they have large families, having two and one-half times as many children as the average citizen. You are in a position to show them the unquestioned economy of preventing the propagation of this class of persons. This is the business of preventive medicine in regard to the feeble-minded — to prevent their propagation. The one great effective means of bringing about this saving to the tax payers, and this improvement of our population, is to segregate the feeble-minded and keep them segregated during the reproductive periods of their lives. Something can be done in educating the public in regard to sterilization, but public opinion is not ready for this as a general policy, and, furthermore, we need a state institution in order to manage sterilization successfully. A state colony for the feeble-minded is an imperative necessity in Mississippi.

One John T. Brady lies in the Lauderdale County jail, where he has been for the past twenty-five months. Brady was convicted in the Circuit Court of the murder of his father-in-law, Pink Hardin. The Supreme Court has affirmed the conviction. Governor Bilbo has stayed the sentence for three months more. Brady is feeble-minded. Several alienists have seen him and all agree upon this point. He has the mind of a child of about seven and a half years of age. He showed less emotion when the Deputy Sheriff informed him late one Saturday night recently of the stay of his sentence for three months than he would have shown had he been taken a nice red apple. This man has cost the community upward of $1,500 during his confinement. He has already been married three times and has two children, and has been making overtures for another marriage during his confinement.

During my visits to thirty-six jails and seven convict farms of Mississippi I have seen other feeble-minded murderers. I have seen feeble-minded rapists. I have seen in all forty-nine feeble-minded prisoners among the 248 in these jails. Taking into account the other forty-six county jails and other convict farms, with their probable population of another 350 persons, and considering that these populations are continually shifting (they come and go out at frequent intervals) it is readily seen that there are two or three hundred feeble-minded delinquents passing through the courts of Mississippi every year. Some of these, of course, are repeating their offenses. Many others are

in the penitentiary. They can not be reformed by any species of betterment work, because the betterment work can not supply them the brains they lack by the conditions of their birth. There are also feeble-minded juvenile offenders at the school at Columbia, unless this school is exceedingly different from all other schools of the kind in the country. The juvenile courts are continually dealing with delinquents who are delinquent because they have not sense enough to be otherwise. It is in the province of the medical man in his community to show not only to judges and lawyers, but to intelligent persons in every walk of life, that the economical management of the defective delinquent is to recognize his defect and manage it scientifically, namely, by custody and special training, and then the delinquency will have been abolished. And more than this, when the delinquent is confined so he can not commit more crime or immorality he is at the same time prevented from propagating his kind.

In a county poor farm in Mississippi there is one white woman of about forty years who has numerous children, both white and black. This woman has been in and out of the county poor farm all her life. The county poor farm has simply served as an aid to her in propagating defectives. She has not the common sense of an ordinary seven-year-old girl, yet she is highly sexed. The community has intrusted her with the management of her life and really aided her, at the expense of the tax payers, in producing these children who can be nothing but parasites all their lives long, and medical science could have foretold with certainty, when this woman was a child of ten, that any child she would bear would very likely be a social parasite. To have allowed her to bring about the social damage she has created is sheer waste and mismanagement. If a farmer in the community allowed such stock to propagate upon his place he would be looked upon as a fit subject for the insane asylum.

I have visited thirty poor farms in Mississippi. In these poor farms were 310 inmates at the time of my visits. Of these, 102 were feeble-minded, 11 were epileptic, 37 insane, and 23 blind. There are in Mississippi 62 county poor farms, and in June, 1918, there were in all 582 inmates reported. It is probable, therefore, that there are about 170 feeble-minded persons on county poor farms in the State. These feeble-minded are very improperly managed in many instances. We found two cases of feeble-minded white women reported to be offspring of incestuous relations between brother and sister. In one poor farm there are two sisters so defective that they are incapable of any work, and a twin brother of one of them is reported as poorly endowed as his sisters. We found five pairs of feeble-minded persons living in poor farms who had been married during their residence, apparently with the full consent of boards of supervisors and keepers. Some of these marriages have resulted in the bearing of feeble-minded children. All of the women in question had illegitimate children prior to these marriages, and many of these were feeble-minded. Some of these men and women themselves have been born out of wedlock and at the poor farm.

Another kind of dependent person we find in our orphanages. In the six or seven hundred children in orphanages in Mississippi there are many who have so little common sense, by the conditions of their birth, that they will never be able to manage themselves with prudence, and they can never compete on equal terms with their fellows. It is not a square deal to the orphanage authorities, nor to the normal children in their charge, nor to prospective foster parents, nor to the community to fail to recognize the business of mental medicine in regard to these handicapped children. They are born with a handicap they can never overcome and the only rational management of them, the only square way of dealing with them and with ourselves, is for the State to recognize them as perennial children — children in mind as long as they live—and for the State to make provision for their guardianship so they can be prevented from committing offenses against the laws and the moral law, and can live lives of

greater happiness to themselves and greater usefulness to the rest of us than they can when they are expected to do things which their endowment has made forever impossible.

Preventive medicine, a vision of public health which takes in the mind as well as the body, will inevitably set about securing scientific care for those who are born with minds which can not grow up to adult standards. It is as important to prevent the birth of a defective, who is destined to be a criminal or a prostitute, as it is to prevent the infection with syphilis and the untimely loss from productive life of a healthy man or woman. Instead of being a liability to the community by his crimes, immoralities and fertile production of other defectives, by proper custodial care in a well organized colony the feeble-minded person may be converted into an asset. He will not produce when left to his own devices. He steals, burns, murders and leads the life of a wanton. But when put into training adapted to his needs, while yet a child, he learns the joy of labor, such as he can perform, and he is able to produce much of the food, shelter and clothing which he needs. The colony for the feeble-minded need be no such great expense to the community as is the State Hospital.

In fact, the cost of maintenance of the feeble-minded, and the properly organized colony for the same, would be considerably less than the present cost of maintenance of these persons in our jails, penitentiaries, poor farms, and orphanages. It is merely a matter of the prudent use of our ability to plan for the future to demonstrate the wisdom in every respect of the colony management of feeble-minded persons. A high responsibility is placed upon the medical men of Mississippi because of their vision in this matter, in bringing about the financial and social savings to be effected in this field, and, since it is so eminently a matter of public health and preventive medicine, the medical men are looked to for leadership and service in connection with legislation contemplated in this State in 1920.

MENTAL HYGIENE*

By J. M. Buchanan, M.D.,
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In considering mental illness the same general principles of hygiene and sanitation obtain as are used in combating any disease or epidemic that threatens the welfare of a community, and the first necessity is prophylaxis, or preventive measures.

It is estimated that 60 to 70 % of mental conditions are hereditary in nature due to bad ancestry, and where not traced to heredity, the cause may be found in faulty living, faulty environment and preventable diseases. If this is true, then if we marry right and live right, there should be no mental defectives except from accidental causes.

Much of the incident of mental defect can be reduced by education and training, and improving the environment and home hygiene; much more can be prevented by segregation and preventing marriage of the unfit and those suffering from syphilis, alcoholism and like inferiority.

In considering the problem of feeble-mindedness the questions to be dealt with are preventive measures, and the most effective way of dealing with defective children. If we approach the subject of prophylaxis in cold blood, we say sterilization, segregation and eugenic marriages are the logical means of preventing the unfit from propagating their like. Sterilization has been tried in some states, but failed because no plan which ignores human relationship and public sentiment can be successful however strong it may be backed by law and legislation. This measure was too advanced for the times, and before sterilization of the unfit can be incorporated in the program of mental hygiene, enlightenment on sociological problems must be advanced by slow degrees.

Segregation offers a practical solution, but so far it, too, has failed from a human standpoint, because that would mean shutting off from society for life all classes of mental defectives, and we can not ignore the aversion to confining a person for life

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unless there be some manifestly urgent reason for doing so.

Another reason why segregation is impractical as a complete means is the economic side, for when an attempt is made to house the large number of feeble-minded and other defectives, there will be a problem calling for appropriations beyond the state's ability.

Practically, then, sterilization, on account of human prejudice, and segregation from a standpoint of human rights and economic measure, are impossible until the people are slowly educated to the sociological and economic necessity of such drastic measures.

The principles of eugenics have already been tried in several states and laws have been passed aiming to assure eugenic marriages, requiring medical inspections of all persons proposing marriage for the purpose of determining whether they were suffering from any disease or constitutional weakness which rendered their marriage unwise and against their own interest and public policy. Bitter opposition to the law on the ground that it was an interference with the private rights of men and women was developed, and the opposition had little difficulty in nullifying and defeating the intent of the statute. Those who did not like it and were unwilling to submit to physical examination had little trouble in avoiding it by going to states where there was no eugenic examination in the way, and in some cases the formality of marriage was done away with altogether. No eugenic law can become effective unless it is Federal and uniform.

The urgent necessity of some means of bettering the standard of our physical and mental fitness was shown by the examination of registrants by medical boards, which revealed an alarming amount of physical unfitness in the young manhood of the Nation. Only 70 % of the men examined were declared to be fit for all military purposes, and there is little doubt that the same proportion of unfitness would have been found among the young women. In fact, I know it was difficult to find women fit for overseas work in the Red Cross and Y. M. C. A. activities.

The Government took these selected men and put them in the best environment possible. They had good quarters in camps ideally situated, their food was wholesome and of the best, and they were well clothed.

They were vaccinated to protect them against contagious diseases, and Uncle Sam being jealous of them, placed the most stringent regulations around the camps to protect the devotees from the god Bacchus and the goddess Venus.

The men were trained and drilled so as to develop the best that was in them and the fittest army that ever marched to war went forth to conquer the Hun.

All of this was well and good for the 70 %, but alas! what of the other 30 %? They were simply sent home as being unfit for war, without another thought, notwithstanding the fact that recent examinations had shown that as a nation we are 30 % below par. Apparently the Government has failed to recognize that for the welfare of a nation and public policy, a sound mind in a sound body is just as essential in times of peace as in war.

Of the registrants rejected, 5 % were feeble-minded and 5.5 % were discharged on account of nervous and mental troubles. These poor fellows were sent home to toil as best they could, marry, and bring into the world more defectives.

The term feeble-mindedness in children embraces a large field ranging all the way from the drooling idiot to the backward or subnormal child.

In dealing with the lower group of degenerates we have a comparatively easy problem aside from an economic standpoint, for with this class there is nothing to suggest except humane custodial care. With the higher types we should consider, in addition to custodial care, special schools for teaching and training the children industrially. These children can be more economically cared for in colonies, where they can be segregated and put in groups for assignment to some specific activity according to their likes and in keeping with their mentality. Some could be taught farming and dairying; others could be taught some mechanical or industrial trade, and in this way they could in some measure lessen the burden of their maintenance. Not all could become industrially efficient or self-supporting, but after

reaching the age of puberty, if they prove to be harmless and sexually safe, they could, under certain restrictions and supervisory after care, live outside an institution.

More serious still is the problem of the backward or uncommon child as found in the public schools, for it is there that the first evidence of deficiency is detected. Our school system is faulty, because disregarding the mental development of children, a fixed curriculum is made and every child is expected to do the same work.

The ultimate aim of education is not reached by the knowledge an individual may obtain while at school, which depends largely upon the cultivation of the faculty of memory, but is reached by the training he receives so as to adjust himself to the conditions under which he must live. This training may be haphazard, may come through individual experience, or it may be systematic and scientifically planned.

Our system of education attempts to follow the latter plan, and is more or less satisfactory with the average child with good environment, but is a lamentable failure with children of poor brain structure where the environment and home associations are inadequate.

On reaching the school age each child should be examined by a physician, preferably one trained in psychology, and a complete history of the nursery years should give a record of his life, including his nourishment, development, sleep, speech, play, likes and dislikes, social traits, and especially any disorders or peculiarities that gave concern to his parents. Such examinations and histories would give each child a rating both physical and mental.

Teachers should have enough training in mental hygiene to take these findings, organize the school into classes according to the ratings, and outline a plan of study and training adapted to each group. It should then be determined whether a child is capable of adapting itself to the new environment and work assigned to it.

The type of training selected must be based not only upon the child's mental development and capabilities, but should also be in line with what is best for a prospective self-supporting citizen.

The number of subnormal children in a school is much larger than is generally recognized, and these may be classed in two large groups. The first group includes those who may be regarded as merely neurotic children, and among them we may look for the too timid and tearful child, the indifferent, the nail biters, the infantile and choreic child, the child with night terrors and a host of others departing from the normal.

The neurotic child may be able to follow the regular curriculum and the treatment may require only a study of the individual case with a view to a readjustment of its environment and home hygiene. For this work, trained teachers or social workers are necessary so as to follow the child to its home and give practical help in establishing better habits of hygiene and arousing an interest in the mother in behalf of her home and welfare of her child.

Children with mental defects must be considered from two points of view, for the study of the personal hygiene and home environment must be supplemented by training them to do what their capabilities permit. In this class are included not only those with marked stigmata, but also a large class known as dull or backward children. These are a hindrance to the normal children, as they can not keep up with their classes, and progress of the class is retarded by teachers trying to force children to do what is impossible for them.

Not recognizing the underlying cause of their backwardness, these children are regarded as indifferent, lazy and often incorrigible, and are subjected to punishment that does no good, and finally, teachers becoming discouraged, lose patience and force them to leave school, or they leave of their own accord, and take to the streets to join the ranks of vagrants and those dependent upon society.

Reforms necessary in dealing with the feeble-minded child call for a reorganization of our school system, and in large centers this is already being done, special or ungraded classes are organized for backward children, and they are no longer forced to do what is impossible for them. Industrial and manual training is taught in many schools and those who are not able

to receive an education are taught to use their hands and fingers.

There should be teachers trained in social work to follow the children to their homes, and where teachers have visited the homes the mothers have been appreciative of the interest in their children. As a supplement to supervision of the school there should be trained social workers who would keep in touch with these children, visiting them in their homes and assisting the parents by seeing that they do not place the children in occupations for which they are not fitted.

It would be a great waste of time and money to keep these children in a training school for years and then turn them out on the world with no after-care.

All measures for caring for the feebleminded are expensive, but the question of expense should not deter us from doing the best we can to save them.

In truth it is not a question of whether we shall or shall not pay for the care of defectives. It is simply a question of whether we shall pay in a way directed toward the control and prevention of delinquents, or whether we shall pay in crime, in courts, in reformatories, in prisons, in almshouses and insane hospitals, for "mental defect forms the largest single cause of delinquency."

AUTHORS' ABSTRACTS

Tropical Diseases and Public Health

Present Status of Public Health Administration. Oscar Dowling, New Orleans, La. American Journal of Public Health, Vol. 9, No. 4, April, 1919, p. 255.

With our entrance into the great war, an era in national history ended. Individualism had controlled the Nation. It was the initiative back of the progress of which all are justly proud. The great social cataclysm of the war brought home to us the narrowness, sordidness and selfishness of our policies and our aims. Subconsciously we had the conviction that when it became necessary we could unite in our great national effort. This was not illogical. Experience proved that patriotic service and self-sacrifice were given without stint. We learned that in solidarity there is strength. We also learned the importance of an executive with full power.

If anything further were needed, it was given by the influenza epidemic which followed. What we learned we knew before, but the lessons were made apparent to a larger number of people. It is clear that fundamental to improvement in public health there must be adequate appropriations. Salaries which will make it worth while for a man worth while to undertake the business of the protection and promotion of the health of the people; funds sufficient to carry out the larger aims as well as to meet emergencies.

Another fundamental is independence of the executive. By this is meant independence of political factions. Public health administration and public health work should be left out of politics. Men should receive appointment and men and women should be employed on merit and not because they have the backing of a political party or faction. Without this essential, public health work can never be the success it should be. The antiquated, loose organization of all health boards is detrimental to progress and good work.

Health administration is a business. It must be planned on a business basis. The limitations of our present system are almost universal. Until the system is changed in the points indicated we can not have effective health protection.

Obligation of the Physicians to the Public Health. Rupert Blue, Washington, D. C. Modern Medicine, Vol. 1, No. 1, May, 1919, p. 23.

The physician's obligation to society should induce him to apply his special knowledge to the study of community health problems and make himself one of the leaders in the inauguration of measures to promote public health and welfare.

To do this he must maintain active contact with the agencies engaged in the promotion of health and welfare; keep informed regarding recent important activities and achievements in the field of public health and state medicine; interest himself in the interrelation of health and social and economic conditions; and cultivate a broader outlook on the relation of medicine to public health and welfare; constitute himself a health educator, always to his patients, and as occasion offers, to the community; seek to discover the causative factors in disease and direct attention to their correction or removal; cooperate whole-heartedly with the health authorities by promptly reporting all births and deaths and all cases of notifiable disease; by assisting in the maintenance of quarantine, by promoting preventive measures for the control of disease, and by utilizing the diagnostic laboratory facilities and specific therapeutic agents offered by the health authorities.

It is almost inexcusable for a physician to be ignorant of the sanitary condition of his community. With the extensive social and economic adjustments now going on throughout the world, the time has come for physicians generally to take a more active interest in determining the relation of medicine to the public health and welfare. Let each physician ask himself:

Do I fully instruct patients in controlling the spread of communicable disease?

Do I stimulate the people of my community to initiate community health work?

Do I always seek to discover the underlying social and economic causes of patients' illnesses?

Do I place self-interest above community wel-

fare by failing to report communicable diseases to the health officer?

Do I strive to keep public health matters out of partisan politics? Do I keep abreast of progress in public health?

If not, why not?

Infant Mortality in the United States During One Year of War. Frederick S. Crum, Newark, N. J. American Journal of Public Health, Vol. 9, No. 4, p. 241.

The data for this study were available in the weekly telegraphic reports of 46 cities made to the United States Bureau of the Census. The period covered was the year ending September 28, 1918. During that year the infant deaths in the 46 cities totaled 50,875. On the basis of previous experience, it was estimated that a very substantial reduction had been effected in the general death rate of infants in practically all of these 46 cities. In other words, intensive preventive work largely due to the Federal Children's Bureau and its Children's Year was more than an offset to any unfavorable conditions inimical to infant life. This condition was changed completely with the onset of the influenza epidemic which was raging as the year covered by this study closed.

The infant death rates as calculated on the estimated populations under one year of age of the 46 cities showed wide variations, or from 44.0 per 1,000 in Spokane to 187.0 in Baltimore. Sixteen North Atlantic cities showed an average rate of 108.0 against an average rate of only 67.3 for seven far-Western cities. The death rates were highest in the Central Atlantic and Southern cities, averaging respectively 151.8 and 111.6. In the 14 cities of the middle West the death rate averaged 103.7.

The author shows that although climate and locality are important factors in determining infant mortality the most hopeful method of attack is in the education of the mother. Prenatal care and breast feeding are likely to result in the largest saving of infant lives. This conclusion seems to be verified by the New Zealand and other experiences.

The paper contains five charts illustrating the differences in infant mortality rates by geographical areas, and two charts illustrating the seasonal variations of infant mortality in New York City and Chicago.

A Rapid Method for the Identification of Bacteria-Fermenting Carbohydrates. J. Bronfenbrenner and M. J. Schlesinger, Cambridge, Mass. American Journal of Public Health, Vol. 8, No. 12, December, 1918, p. 922.

In isolating non-lactose fermenting members of the colon-typhoid group, one frequently encounters strains of B. coli which ferment lactose remarkably slowly. The method here described permits early and efficient elimination of these slow lactose fermenters, and is simple enough to permit of the examination of every suspicious colony on the plate.

The authors prepare a medium containing 1.5 % of agar, 0.5 % of sodium chlorid, 1 % of peptone, 2.0 % of carbohydrate and a suitable quantity of indicator. While hot, this lactose agar is deposited in drops by means of a sterile capillary pipette on the inner surface of the bottom of a Petri plate. Inoculate each drop with the material from individual suspected colonies; then place a fresh drop of the same lactose agar over each one of the primary drops, thus securing the conditions of slightly lowered oxygen tension, favorable for the carbohydrate metabolism of bacteria. Invert the plate and place in the cover a filter paper moistened with 2.0 % NaOH to neutralize volatile acids and to make a moist chamber.

By this technic one causes a comparatively large number of bacteria to grow in a very circumscribed area, thereby sharpening the reaction, and the appearance of acid is frequently noted after four to six hours of incubation. Moreover, if the drop cultures are permitted to grow twenty-four to forty-eight hours, it is possible to eliminate a very large proportion of slow fermenting strains of B. coli which produce acid on liquid lactose media after only eight to ten days.

Problems of Canning. Willard D. Bigelow, Washington, D. C. American Journal of Public Health, Vol. 9, No. 4, April, 1919, p. 283.

This is the report of a committee of the Food and Drug Section and is mainly a report of progress. A brief statement is made of the work being done and the investigations now under way.

Tin Plate Investigation.—Study is being made by means of extensive experimental packs of the desiderata of tin plate intended for the manufacture of food containers.

Discoloration of Contents.—Several types of discoloration occur in canned foods owing to causes only partly understood. These have no influence on the health of the consumer, but are objectionable because they detract from the appearance of the food. Much study is being given to this subject, especially to the cause and prevention of black discoloration on the inner surfaces of cans containing corn.

Bacterial Flora in Canned Foods.—Much work is being done in identifying bacteria which cause spoilage and determining the time and temperature of sterilization necessary for their destruction.

Heat Penetration.—In order to make use of the data obtained by the bacteriological work mentioned above,a study is being made of the rate of heat penetration in different articles of food and the temperature curve in the center of the can during sterilization and cooling.

Standards for Canned Foods.—Progress is being made in formulating standards and definitions which it is held will promote greater uniformity in canned foods and will permit the labeling of the products in such a manner that the consumer can buy more intelligently.

Food Poisoning.—Distinct progress is being made in the study of food poisoning previously reported and some publications relating to the matter will appear shortly.

SURGERY

RAILWAY, INDUSTRIAL, GYNECOLOGICAL, OBSTETRICAL AND UROLOGICAL

THE FATE OF THE BONE GRAFT: A CLINICAL STUDY*

By Willis Campbell, M.D., F.A.C.S.,
Memphis, Tenn.

This subject is of especial interest at present on account of bone lesions resulting from our recent conflict, amenable only to this method of repair.

My experience is limited entirely to civil practice, with the exception of recent cases returned from the Army, the results of which are too early for consideration. I have employed bone graft for the past ten years in possibly one hundred and fifty cases, seventy-five of which are used as a basis for this discussion. Only the autogenous graft is practicable and will be considered, that is, the living graft from the same individual. In most instances the bone was taken by means of a motor saw from the shaft of the tibia, not using the crest, the removal of which may so weaken the donor bone that fractures occasionally occur.

The pathological conditions which necessitated this measure are as follows:

1. Deficiencies in the body of the vertebra: tuberculosis, fractures, congenital anomilies, spondylitis deformans. The Albee operation is required, which consists in splitting the spinous processes of at least seven vertebra, making a gutter or trough in the midline, into which a graft of equal length is inserted from the tibia. The object is for better fixation, prevention of deformity and indirectly affecting the diseased process.
2. Congenital deficiencies: congenital absence of whole or of parts of bones.
3. Acquired deficiencies: trauma, infection, tumor, etc.
4. Un-united fractures.
5. Fixation of joints when motion is undesirable, as in paralysis, and to produce ankylosis in diseased joints in tuberculosis, arthritis deformans, and extreme trauma.

The fate of the bone graft and the success of the operation depends materially upon many factors in the technique of the procedure. Above all, infection must be avoided; otherwise the graft will act as a foreign body at the seat of infection, requiring removal, with absolute failure of the object. There have been reports of grafts remaining despite infection and the desired result obtained by the Carrel-Dakin method of wound treatment, but this is far from the rule. Consequently, the most rigid asepsis is essential, preferably absolute instrumental technique, which was most rigidly enforced in all of my cases. If the case has previously been the seat of infection, all symptoms must have subsided for six months, or longer, before this method is employed.

Bony contact at both extremities of the graft is essential, and in some instances throughout the entire length of the graft; otherwise, our graft will remain a foreign body in soft tissues to be gradually absorbed. The periosteum should remain intact when practicable, though some doubt remains as to its value in osteogenosis. The receiving cavity, or bed, must be as free from scar tissue as possible and, when practicable, scars must be avoided, the incision and entire operation being done in a new field and in normal tissues, which greatly promote nutrition and avoid latent infection in old scars. Also, the graft should be placed as far from the skin surface as practicable. Absorbable sutures of kangaroo tendon, chromic catgut, etc., were used frequently and, when possible, simply dove-tailing the graft. Wires and foreign bodies were scrupulously avoided. In addition the soft tissues are sewed tightly about the graft. Suitable external splints, or plaster of Paris, which give perfect fixation, where applied to remain at least three months, and, in most instances,

*Read before the Mississippi State Medical Association, Hattiesburg, May 14-15, 1919.

orthopedic apparatus is worn for one year. Callous formation is much slower in such cases, for the osteogenetic forces are often diminished by the pathological process.

The percentage of failures is extremely low as far as the action of the graft is concerned. In only one absolutely clean case did infection occur, and this was caused by faulty mechanics. In three cases with history of prolonged sepsis there was a "light-up" of the old process, 'though there were no signs of infection for many months prior to the operation. All cases received a most careful examination, including Wassermann, etc., prior

Case 1.—Man, age 50 years. Bone graft in neck of femur, old un-united fracture. Perfect result.

to operation, and all obstacles to success were removed. Of these seventy-five, seven gave a history of previous bone infection, three of which became immediately infected, necessitating removal of the graft. In seventy-two the grafts remained intact, the wounds healing by primary intension. In twenty-eight Albee operations, one of the early cases became infected from pressure necrosis of the graft against the skin, the remaining twenty-seven healing promptly.

In ten cases grafts were used to replace defects in continuity—congenital or acquired. The progress of these cases is most encouraging, 'though sufficient time

Case 2 (a).—Man, age 50 years. Un-united fracture of neck of femur.

has not yet elapsed to consider the ultimate results, but every case healed permanently with the graft in position

Case 2 (b).—After operation, three months later, showing graft in position.

months and years afterward. Thirty ununited fractures were treated by bone grafts, the inlay method being used when

possible. In three above-mentioned when infection had previously existed there was a re-infection which necessitated removal

Case 3 (a).—Woman, age 45. Un-united fracture—four months' duration.

of the grafts. The remainder healed by first intention. One un-united hip failed on account of fracture of the graft, and

Case 3 (b).—One year later, showing graft in position with fracture united.

one un-united humerus failed. In two a sufficient time has not yet elapsed, but in the remaining twenty-three solid bony union occurred with restoration of function.

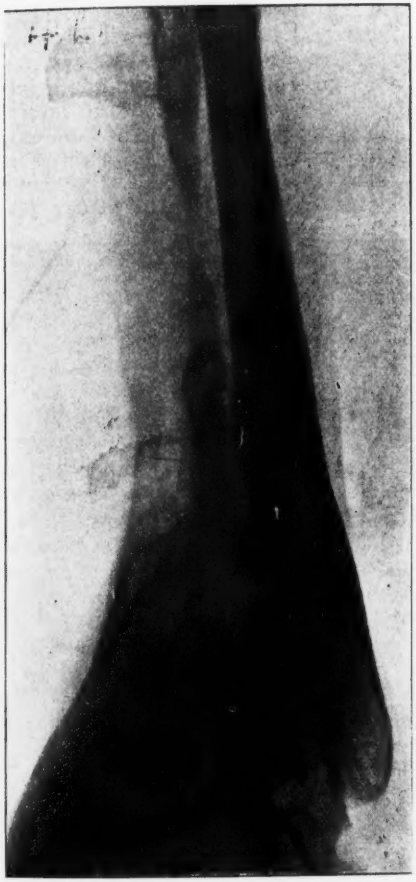
In three tuberculous knees the free patella graft was applied for the production of ankylosis, one being successful, while the other two are not satisfactory at the present time. More recently I have employed the patella as a graft by sever-

Case 4 (a).—Man, age 28, showing normal left limb.

ing the quadriceps tendon and leaving the attachment of the tendon intact. The anterior surfaces are denuded and inlaid betweeen the articular surfaces of the femur and tibia. Thus we avoid disturbance in nutrition which must ensue when such a thick mass of bone is made a free graft. In this manner I have also employed the

Case 4 (c).—Both views showing bony formation with closure of defect.

patella by denuding the lower third and placing it in a prepared cavity of the same size and shape on the upper anterior aspect of the tibia, thus producing a stop-joint when genu recurvatum exists from



Case 4 (b).—Showing bony deficiency of right limb in old osteomyelitis.

paralysis or congenital causes. A detailed description of this measure is given in the *Journal of the American Medical Association,* September 21, 1918, Vol. 71, p. 967.

In two tuberculous knees I used the free graft from the tibia by simply pegging the articular surfaces together, one of these being only two months ago and the other about ten months. The result in the latter has been so satisfactory thus far that I shall give a brief history:

The patient, a Negro boy, ten years old, had a healed tuberculous spine, and a typical tuberculosis of the right knee of one year's duration. The knee was at thirty degrees flexion. Under anesthesia a bone peg was inserted through the head of the tibia into the lower extremity of the femur. Recovery was uneventful. The boy now has bony ankylosis with no untoward effect on the growth, although the graft passes through the high epiphysis and the diseased joint. He walks without support, all symptoms having entirely subsided. This procedure would not be advised in any case when full co-operation of the patient could be secured.

Two main theories exist as to the fate of the bone graft:

Case 5 (a).—Showing bony deficiency from gunshot wound.

1. The transplant lives and becomes an integral part of the skeletal system.
2. The transplant acts as a framework,

or scaffold, through which bone is substituted.

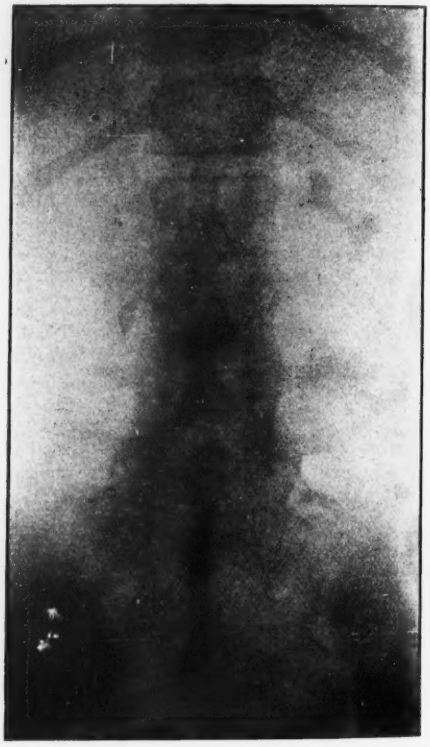
It may make but little difference practically which may be true if new bone graft is the ultimate result; but, as neither fact is definitely proven, further investigation is essential to advancement. Hence, we have made a comparative study clinically,

Case 5 (b).—Showing bone in position with apparent formation of new bone at the distal end, six weeks after operation.

and through a series of skiagrams, of the action of the graft in different conditions.

1. First, let us consider the transplantation of the tibial graft into the spinous processes, as above described (Albee). In seventeen instances, observations were made at short intervals for six months to two years, a close, comparative radiographic study being made of each case. Four were under ten years of age and showed undoubted evidence of absorption of the entire graft. In three of these instances the clinical result was excellent, fixation being accomplished for a sufficient length of time to arrest the pathological process. Nine were adults from 19 to 43 years of age. One, aged 9, showed thickening of the graft at the end of one year. In two debiliated cases there was no change at the end of six months—no reaction on the part of Nature. In six cases, observed from six months to two years, there was undoubted absorption of the graft. All, however, remained in position, apparently performing the function of compensatory support and fixation, for which purpose they were employed. Four adolescent cases were observed from one to two years. In each the graft apparently increased in size with a permanent bridge of bone, possibly larger than the original graft. Undoubtedly this is the most favorable age for the use of the bone graft.

2. In twenty un-united fractures successful x-rays were made at frequent intervals of from six months to two years.



Case 6.—Spinal graft in position 18 months after operation.

Twelve of these were of the neck of the femur. In one there was no apparent change at the end of one year though union had occurred. In eleven, gradual disintegration could be seen to

such an extent that complete absorption could be predicted; 'though we could not expect otherwise, from a pathological standpoint, when we transplant dense into spongy bone.

3. In eight un-united fractures of the long bones the inlay was employed in four cases and the medullary in four. All of the medulla transplants were absorbed, while the four inlays remained intact.

The patella graft is so large and thick that we have been unable to determine its action except in those cases where tendon has remained attached, when there was no change; but this is not a true, free graft, and hence is incomparable.

We have been able in only three instances to observe the course of the graft in bone defects. Each has acted in a different manner. In one, the graft was rapidly disintegrated and absorbed, with massive, diffuse callous closing the defect, or possibly obscuring the graft. In another there was no apparent change, and in the third there appeared a gradual, bony thickening of the entire graft.

From a close analysis of these we could reach no definite conclusion, but might surmise:

1. In adolescents and young adults, grafts are more vigorous and apparently act as a living, integral part, showing no disintegration, but a gradual increase in size and thickness.

2. Every evidence indicates the inlay as the physiological method. The intramedullary should not be employed where osteogenesis is feeble.

3. Spinal grafts in young children, and probably in adults, are absorbed.

4. The graft may be inert or very feebly osteogenistic but mechanically perform the function for which it was employed,—as in the neck of the femur (dense into spongy bone).

5. From the x-ray in a few cases bone appears to form in strata about the original graft very much as an involucrum about a sequestrum, 'though no definite evidence of such action has been produced.

6. Further study of a larger number of cases over a longer period of time is necessary before definite statements can be made.

In conclusion, I desire to call your attention particularly to the necessity of waiting until all evidence of infection has entirely subsided before doing any bone operation for the restoration of function. All signs and symptoms such as swelling, induration, tender joints and inflammatory products as shown by x-ray should cease to exist for at least six months. Even after these precautions, there is no case in which previous infection has existed that we can be certain that a "lighting-up" will not occur. If one will consider osteomyelitis, it is quite evident that there is no method, x-ray or otherwise, by which we can determine a latent process in bone. I have repeatedly seen cases that have been healed for ten or twenty years become painful with abscess formation, extrusion of sequellæ, and at times requiring extensive operations. Consequently, how can we know that any osteomyelitis, from shell wound or other

Case 7.—Spinal graft in position 14 months after operation.

cause, does not possess a latent focus of infection? However, by extreme care and much patience on the part of the surgeon and the patient, this danger can be much reduced, with a far greater proportion of successful results and the saving of many joints and limbs which would otherwise be sacrificed.

1028 Exchange Bldg.

TRAUMATIC HEAD SURGERY

By Charles W. Roberts, M.D.,
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There is a growing conviction among medical men that injuries of the head and its viscera have not received, in the past, the same painstaking study nor enjoyed the same practical application of surgical principles, as has been reluctantly applied to injuries of other viscera. Conditions growing out of the turmoil of war have given this subject special emphasis. The surgical mind has been aroused. I ask your indulgence in a practical discussion of a few of the principles involved.

Out of the enormity of the subject embraced by the title of this paper there stands forth one fact with which I have been most deeply impressed, namely, that quite a large number of people are yearly losing their lives due to the old-fashioned idea of "concussion of the brain," a meaningless term from the clinical standpoint, serving only to cloak the real injury to the brain or its coverings, all of which injuries are usually thrown together into this diagnostic misfit box—dubbed concussion—and the patients thought of no more until the undertaker calls upon us to sign the death certificate. Who does not readily recall the frequency with which our scanning eyes, following the headlines of the daily papers, observe that Mr. X. was thrown from a horse, receiving a concussion of the brain; that he soon rallied, walked, talked, perhaps went about his affairs, later only to lapse into unconsciousness and die; or how the young boy, riding his wheel to school, is thrown from it to receive what is supposed to be a simple injury, later resulting fatally. It is to ask you whether we, as a profession in Georgia, are studying head and brain injuries as we study abdominal injuries, or whether we are not, in most instances, passing up this part of the anatomy as too mysterious for a result-producing study; whether we, as a profession in Georgia, are trying hard to interpret properly these injury cases, or are rather dismissing them with this ill-adapted diagnosis of concussion, and thus ending our feeling of responsibility. Further, it is to try to stimulate a new interest in this common tragical condition in the hope that we may save some and improve others. Finally, it is to avoid suffering the remorse that comes to the true physician when he realizes that he has failed to read the truth in a given case, that I have presumed to intrude upon the deliberations of this body.

Quoting from a paper read before this Association some years past on subparietal injuries to the abdominal viscera:

> "It does not require a very high degree of ordinary intelligence, and perhaps an even more elementary knowledge of the art of surgery, to know how to advise patients presenting themselves with gaping wounds of parietes or muscle, but a pardonable pride should be accorded one who looks beneath the surface and sees, with the trained eye of the modern student of medicine, serious trauma to underlying organs."

Likewise little, if any, professional knowledge is required to diagnose a depressed fracture of the skull. The layman knows that when his head is driven in like an eggshell the depressed areas should be raised. As physicians, we should look beneath the surface, read the handwriting on the wall, and be able to discover the hidden damage, to correct which may save a life which would otherwise be lost, or to prevent the slow development of future trouble, although Mother Nature may pull the patient over the immediate effects of the injury.

Certain anatomical facts are necessary for an adequate understanding of these head and brain injuries. In the minds of most of us there exists an idea that the skull interposes itself as an impassable barrier between the soft parts of the head and the brain within. We should recall that there exist direct channels, numerous openings through this barrier, in the emissary veins, which permit the free and easy passing of infection to the meningeas and brain. Simple lacerations of the scalp may soon heal, and when we have forgotten the trivial injury to the soft

parts, our patient returns with brain abscess.

Unlike all other cavities of the body, the brain case, being formed from a solid mould of bone, does not permit of the swelling of its contents beyond an insufficient limit. This bony case, enclosing such important viscera, is further ill-adapted to accommodate itself to the result of contusions of its viscera by having a non-yielding, fibrous, exceedingly tough covering interposed between itself and the soft, jelly-like contents, the brain substance. These anatomical facts limit swelling of the brain, following contusions or severe concussions, to such extent as to cause a dangerous intra-cranial pressure in many cases, which, if not relieved, results in permanent injury to the brain.

The most interesting, because connected etiologically with the cause of the most spectacular type of head injuries, is the anatomical explanation of the usual case of extra-dural hemorrhage. Hundreds of people die annually because the profession has failed to appreciate the manner in which the middle meningeal vessel enters the cranial cavity and is distributed to the brain coverings. Nature, so deft in her construction of the human body, adapting its numerous organs to such harmonious labors, so perfectly moulding its various parts as to forestall any thought of improvement by human architecture, has apparently made a slip in putting in this important vessel. Leaving the internal maxillary branch of the external carotid and passing into the skull through the foramen spinosum, it takes a course in the inner wall of the parietal bone, being only partly buried, in an incomplete canal; and after traversing this bony canal for an inch or so, leaves the bone to pass into the very fibrous meningeal covering beneath. An imperfect canal is seen, in many cases permitting a sharp edge of bone to lie in contact with the vessel. When, from any cause, the underlying elastic body is pulled or pushed from its close contact with the inner bone surface, this vessel is easily cut by the sharp edges of bone referred to above. Hemorrhage follows actively, the blood accumulating outside the dura and being, for a time, accommodated by the passing of the cerebro-spinal fluid into the spinal canal spaces. This accounts for the "free interval" elicited in the history of this interesting class of brain cases. After all available spaces are filled by the dislodged spinal fluid, pressure begins to assert itself upon the brain as there appears a larger and larger clot. Death ensues from intra-cranial pressure, destroying the activity of the base centers of the brain. These cases are very common and are overlooked mainly because of this "free interval" referred to, in which the patient appears to rally from the immediate shock of the jury, later to have the fatal recurrence. Injury to this vessel being the most common, causing some 85 % of hemorrhage cases, should at all times be borne in mind. They lend themselves to ready cure by operation and furnish the truly spectacular results seen in brain surgery. This class of cases, when not operated upon, results in one of two issues: the severe cases die and the rest result finally in brain cyst cases, producing Jacksonian epilepsy, or other definite localizing signs, for which operation is ultimately required. Late operations are now done for these terminal conditions of brain injuries more often than primary operations. This is a sad commentary on the diagnostic acumen of our profession. That more perfect results would follow immediate operation should appeal to the phyician as readily as the argument in favor of early operation in appendicitis.

The physician's duty to the patient with a head injury takes on scientific interest only when we are far removed from the common policy of watchful waiting. There is no longer just excuse for frank cases of abdominal visceral injury escaping the attention of the modern doctor. Unless a diagnosis can be made, or reasonably conjectured, an exploratory operation is done. All agree to this idea. Unfortunately, little condemnation falls upon the doctor who permits the head injury case to escape his correct interpretation. Why should we not apply the same process of reasoning?

For the purposes of this paper, I shall divide head injuries, including injuries to the underlying brain, into three classes:

1. Injuries to the soft parts alone.
2. Fractures of the skull, with or without depressed bone.
3. Injuries to the underlying brain and

its covering, or to its vascular supply.

When called to see a patient who has been subjected to any or all of these injuries, the physician's course should be determined by an early analysis of the condition present. Simple soft part injuries need careful cleaning up, suturing and drainage, unless one feels very sure of his technique. The frequent result of these cases is brain abscess. Its prevention is cleanliness in dealing with the wound, plus the promotion of rapid healing.

Fractures may, or may not, require operation. Without argument, all depressed cases should be operated upon, the bone elevated, and a decompression operation done if there are definite indications. Fracture cases without depression need operation only in case there has been sufficient injury to the brain to produce dangerous intra-cranial pressure or to tie up a bleeding vessel and remove accumulated clots.

The third class of cases, those causing such severe shaking up of the brain as to be followed by active swelling, and usually manifested by mental dullness, congestion of facies, increased and especially increasing pulse pressure, should have a wide decompression operation done. The point of election, and what constitutes a decompression operation, are subjects open to debate.

Observation, covering quite an extensive series of traumatic head cases, has confirmed a growing belief in certain cardinal principles, with which I conclude:

1. Lacerations of the soft parts should not be looked upon as simple conditions. The frequency of brain abscess following such injuries does not justify this viewpoint.

2. All depressed fracture cases should be operated upon. Late epilepsy, or interference with the highly organized cortical centers, demands this method of treatment.

3. The important factor in a head injury case is not the presence nor absence of fracture of the vault or base. Patients most seriously injured commonly have no fracture at all, and, conversely, the simpler types of brain injuries are frequently associated with tremendous linear or depressed fractures. Often these apparently alarming fracture cases are saved by the very enormity or extent of the rent in the bone, permitting quick drainage of free blood and the fluids resulting from rapidly ensuing edema.

4. The study of a head injury patient, and the method of treatment required, hinges upon the question of intra-cranial pressure. The elevation of depressed bone, the removal of loose bone fragments, the checking of hemorrhages and the repair of soft parts are the simple incidents connected with a given case. A gradually increasing intra-cranial pressure, as evidenced by a rising pulse pressure but more accurately by frequent resort to the ophthalmoscope and the spinal mercurial manometer, should be convincing proof that a cranial decompression and drainage should be done.

5. The decompressive effect of a craniectomy is dependent upon the area of bone removed and fails to be of value unless the dura is widely opened and left open. The old-fashioned trephine should be discarded and remembered only as of historical interest.

6. The diagnosis of "concussion of the brain" should be held in reserve for that class of cases suffering only temporary symptoms. The lack of a proper understanding of the significance of this term negatives scientific investigation and the effective handling of many cases.

1026-7 *Candler Bldg.*

URETERAL CALCULUS*

By Geo. R. Livermore, M.D., F.A.C.S.,
Professor of Genito-Urinary Surgery, University of Tennessee; Genito-Urinary Surgeon, Baptist Memorial and Memphis General Hospitals,
Memphis, Tenn.

A ureteral calculus produces pain only when it blocks the ureter and when it causes spasmodic contraction of the pelvis or the ureter. These are points well worthy of consideration and emphasize the importance of determining the source of pus found in the urine. The etiology

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of ureteral calculus is rather obscure. The idea that there must be a nucleus, such as a blood clot, clump of pus or bacteria as a starting point for a calculus, and that infection favors the formation of stone seem to be most universally accepted. However, nuclei of pus, blood or bacteria can not always be demonstrated and in some cases infection, e. g., chronic pyelitis, lasts for years and no calculi are formed.

I am a firm believer in the infection theory, especially so since focal infection has been found to be the causative agent in so many obscure conditions, and then, too, infection supplies the necessary (?) ingredients (blood, pus and bacteria) for a nucleus. Water and diet are said to play some part and a sedentery life certainly predisposes to the formation of stone. Both sexes are equally subject to it and the decade between 30 and 40 seems to be the most frequent age affected.

The symptoms of ureteral calculus may be very marked or practically absent. Some give rise to the most agonizing pain with blood, pus and bacteria in the urine, while others produce no symptoms at all. In the painful cases, the pain varies from a dull heaviness in the loin to excruciating agony that even morphine will not relieve. It may last only a few minutes or many hours. It may also be intermittent. The pain usually begins in the region of the kidney or loin and radiates to the testicle or glans penis in the male and ovary or labium in the female. Sometimes it centers in the crest of the ilium near the anterior superior spine and radiates down the back of the thigh. It is frequently brought on by exercise, although a patient may be awakened by an attack after sleeping quietly all night. Nausea and vomiting, with gaseous distention, frequently accompany the pain. In nearly all cases blood can be found in the urine after an attack. Irritability of the bladder with frequent urination, even with marked tenesmus, may occur. Calculus anuria sometimes results from a stone in the ureter—not only of the kidney on the side involved, but also reflexly on the other kidney. Kelly and Burnam, as well as Guiteras, are skeptical about reflex anuria unless the other kidney is diseased.

DIAGNOSIS

If the x-ray shows a shadow of a stone in the line of the ureter, the diagnosis is simple if all other findings agree, but it is a fact that we sometimes find shadows with the x-ray and at operation fail to find the stone, and Braash says a diagnosis of ureteral stone can not be made from roentgenographic data in more than 60 % of cases. Pure uric acid and phosphatic calculi often fail to cast a shadow. Cystoscopy and ureteral catheterization with functional tests of both kidneys and complete examination, including cultures of urine from each kidney, the use of the wax-tipped catheter which may be scratched when it strikes the stone, the injection of thorium solution through the ureteral catheter to give a coating to a stone that otherwise would not cast a shadow, the use of lead or barium ureteral catheters to show the position of the ureters on the x-ray plates, and making two exposures on the same plate by changing the position of the x-ray tube, as suggested by Kretschmer, also the examination of the plates through an opera glass, as suggested by Bevan, all should be utilized in our efforts to make a diagnosis.

I have recently had a case of pyelitis following influenza and tonsillitis, in which the patient had typical renal colic with both blood and pus in the urine. Kreissel and Gehl report a similar case in the *Urologic and Cutaneous Review* for April, 1919.

TREATMENT

I am not an advocate of the expectant treatment in dealing with ureteral calculi. I agree with Kelly and Burnam that a foreign body (stone) lodged at any point on the urinary tract is always a source of danger, a sword of Damocles hanging over the patient's head; for while we temporize, it may increase in size, produce infection and hemorrhage, block the ureter, thus predisposing to hydro- and pyonephrosis, and reflexly may cause calculus anuria and by traumatism and pressure against the ureteral walls, produce abrasions and ulcerations that later may result in stricture of the ureter.

As soon as the diagnosis of calculus of the ureter has been made and its size and position determined, we should begin our

campaign to remove it. If the stone is small, not much larger than the lumen of the ureter, there is every chance in our favor of removing it by cystoscopic methods. These consist in dilating the ureter with bougies or the passage of two or more ureteral catheters, the injection of olive oil or liquid albolene above, about and below the stone. If the stone is large and situated near the ureteral orifice in the bladder, we can sometimes grasp it with the alligator forceps through the cystoscope and succeed in coaxing it into the bladder. Also by reducing the edema about the ureteral orifice with the high frequency current, the calculus will often drop into the bladder. Failing in these two methods, we can do a meatomy on the ureteral orifice with the cystoscopic scissors through the cystoscope and then with alligator forceps extract the stone. Sometimes following meatomy, the hemorrhage will obscure the field so that the extraction of the stone with forceps will have to be postponed until the next day. I disapprove of the use of wires, stiff metal instruments or the Cunningham catheter in attempting to remove stones from the ureter except when near the orifice on account of the danger of tearing through the ureter. So good and scientific a urologist as Dr. G. S. Peterkin, of Seattle, Wash., cites a case in which he attempted to remove two ureteral calculi with a Cunningham catheter and punctured the ureter.

If the stone is a large one, or if we fail in our efforts to dislodge it through the cystoscope, or if the condition of the patient demands it, e. g., calculus anuria, we are forced to operate. . Passing a ureteral catheter prior to operation greatly facilitates in locating the ureter. The choice of operation depends upon the position of the stone. If near the pelvis or within a few inches of it, a prolongation of the regular oblique nephrectomy incision is all that is required. If, however, the stone is near the pelvic brim, the incision should be made in the semilunar line and should be carried down to the peritoneum, which is carefully separated and pushed inward toward the midline. The iliac vessels across which the ureter passes will be our guide and if, as I have suggested above, a ureteral catheter has been passed prior to making the incision, no difficulty is experienced in finding and separating the ureter. It is then grasped over the stone, a longitudinal incision made in the ureter and by gentle pressure the stone is forced through the incision. The incision should be closed with fine silk sutures, only including the outer coats of the ureter and never going through the mucous coat. The incision is then closed, leaving a cigarette drain down to the ureter.

In large fat people this is sometimes a very difficult procedure, and in such cases I have removed ureteral stones near the brim by the trans-peritoneal route. With proper care in walling off the peritoneal cavity and careful suture of the ureter, no harm will result and the operation will be easier for the operator and safer for the patient. I think it best not to suture the peritoneum over the ureter, or at least to close it only partially, for if there should be leakage, it would be preferable to have it carried out by capillary action along the drain rather than accumulate behind the peritoneum, with no outlet for it or the resulting infection.

When the calculus is in the last 5 or 6 c. c. of the ureter, the incision can be made a little lower than when at the pelvic brim—the ureter is located as above and after freeing it in front of the stone, the stone may be forced upward by squeezing the ureter below it 'till it is easier of access and then removed, or it may be possible to squeeze the ureter above it and force it on into the bladder. Failing in both methods, we can make an incision into the ureter as close to the stone as convenient, then pass an alligator forceps through the incision into the ureter and down to the stone which may be grasped by the forceps and withdrawn.

It is surprising how many ureteral stones can be removed by cystoscopic means, and this paper is a plea to use every method at our command to assist the patient to pass a ureteral calculus before subjecting him to an operation.

ACUTE UNILATERAL HEMATOGENOUS NEPHRITIS*

By John M. Maury, M.D., F.A.C.S.,
Memphis, Tenn.

While infections of the kidneys are usually described under the names of pyelitis, pyelonephritis, pyonephrosis and perirenal inflammations, it is well to keep in mind Kelly's observation to the effect that they are but different stages of the same process and have no sharp line of distinction between them.

Pyelitis means that the infection is primarily in the pelvis and calices of the kidney; but cases of pyelitis may have multiple foci of infection in the cortex, which is exactly the condition described as pyelonephritis. Or, a pyelitis may result in the transformation of the kidney into a pus sac which is the condition meant by the term pyonephrosis. Pyelonephritis with, in its early stages, multiple abscesses may by coalescence of these abscesses result in a pyonephrosis. Granting that a perirenal inflammation may result from extension from appendix, gall-bladder, etc., still it is in the majority of cases the result of an extension of an infection from the kidney.

Up to a few years ago infections of the kidney were regarded as having reached that organ by ascending the ureter, but through experiments on animals by Brewer and others it was found quite difficult to produce an infection of the kidney by this route. On the other hand, it was found that by injecting septic material into the blood stream the condition was easily brought about, especially if the vitality of the kidney were lowered by trauma, ligation of the ureter, the presence of stone, etc.

The condition under consideration is described in books as pyelonephritis which may exist as a unilateral or bilateral infection. The bilateral infection is a part of a general septic condition, while the primary unilateral form, which we have under consideration here, was described by Brewer, in 1906, under the name "Acute Septic Hematogenous Nephritis." Until Brewer published his article no distinction had been made between the unilateral and bilateral forms; and he should be given full credit for his work. Since then other valuable work in pathology, symptomatology and treatment has been done by Cunningham, Cobb, Cotton and others.

*Read before the West Tennessee Medical Association, Dyersburg, May 29, 1919.

ETIOLOGY

Acute unilateral hematogenous nephritis is, as its name implies, an acute septic blood-borne infection deposited in one kidney, the exciting cause being one of the pyogenic organisms.

PATHOLOGY

In describing the pathology, Cunningham starts with the postulate that the disease begins with the lodgment of a single organism or a single group of organisms in the cortex of the kidney.

From the primary focus the infection spreads by the lymphatics, blood vessels and tubules more or less throughout the organ. If the organism be sufficiently virulent, there results a mulitude of miliary abscesses, many of which coalesce; but if the organism be of a less virulent type, there results "a diffuse inflammation extending through the kidney without abscess formation or solution of tissue" (Cunningham).

The inflammatory process may be confined to one pole of the kidney as occurred in one of my cases.

SYMPTOMATOLOGY

Naturally two such divergent pathological processes present different clinical pictures, 'though the initial symptoms are identical as one would infer from a study of the etiology. The onset is always sudden and is usually manifest as severe pain in one or the other side of the abdomen, most frequently the right. In fact, in all four of my cases the right kidney was the seat of the lesion. The pain is usually severe and is accompanied with nausea, vomiting, rigidity of the abdominal muscles of the corresponding side, rise of temperature and increased leucocyte count. In short, the picture is that of the acute abdomen and one is struck by the frequency with which reported cases have been diagnosed as acute appendicitis, acute cholecystitis or perforation of a gastric

or duodenal ulcer. The mistake is the more easily made because of the usual absence of urinary symptoms and the very scant findings manifest on examining the urine. One of my cases, however, began suddenly with frequent painful urination, the pain being referred to the region of the bladder, 'though tenderness was located over the right kidney.

The urinary findings are a trace of albumen and a few red and white cells, 'though Cunningham states that in some cases the red cells may be in sufficient amount to color the urine.

The tenderness may be more or less diffused over one side of the abdomen, but its point of maximum intensity is at the costo-vertebral angle over the affected kidney.

As the disease advances, clinical manifestations differentiate the pathological forms. The suppurative type gives rise to an increasing septic intoxication with continued high fever, rigors, sweats and delirium, while in the non-suppurating type the symptoms gradually become less intense with lowering of temperature, lessened leucocyte count and progressive improvement in the patient's condition.

TREATMENT

These cases, no matter into which type they may later resolve themselves, are at the outset acutely ill and markedly septic, and it is often a matter for the exercise of keen surgical judgment to determine when an operation is necessary. The non-suppurating cases under milk diet, large quantities of water and urotropin will recover, while for the suppurating type only surgery will save the patient's life. In a few reported cases in which the process was limited to one pole, an excision of the diseased portion of the organ has resulted in a cure. This, however, because of the diffculties of determining the extent of involvement of the organ, is a questionable procedure and it would seem that unless contraindicated by some uncertainty as to the condition of the other kidney which would make it advisable to conserve all kidney tissue possible, nephrectomy would be safer.

In one of my cases, not seen until about the tenth day, in which the disease was confined to the lower pole of the right kidney, resulting in an abscess which had broken through the kidney capsule and infected the perirenal tissue, simple drainage was employed and the kidney saved.

CASE REPORTS

Case 1.—This was reported in the SOUTHERN MEDICAL JOURNAL for July, 1917, and the following is a quotation from it:

"On the afternoon of November 10, 1914, when I first saw the patient, his temperature was 101.5°, pulse 112, and 'though fairly comfortable, he looked sick. The abdomen was flat and a mass, 3½ x 2½ inches reaching to within two inches of McBurney's point, was distinctly visible. The mass was hard, moderately tender and could not be palpated through the loin, 'though there was some tenderness in that region. White count, 12,000. The urine contained a few pus cells, a trace of albumin and some hyalin casts.

"Taking into consideration the sudden onset, the location of the mass, the little involvement of the general peritoneal cavity and the paucity of the urinary findings, the diagnosis was appendiceal abscess with the appendix turned outward and confined between the lateral wall of the iliac fossa and the cecum.

"Entering the peritoneal cavity through an incision over the mass, I found the cecum high, the appendix normal and both closely applied to the mass which was in the cellular tissue behind the bowel and evidently connected with the lower pole of a kidney which was displaced downward.

"The relation of the appendix to the mass was such that I feared to open a pus pocket into the peritoneal cavity if an attempt were made to pass a ligature under it; so the appendix was not removed. Closing the incision and making one in the loin, an abscess cavity was encountered in the lower pole of the kidney, which had ruptured through the capsule and infected the surrounding cellular tissue. Isolating and bringing up the kidney revealed no other lesion, so it was returned to its bed and the wound closed around a rubber drainage tube.

"Recovery was slow; the wound became infected; and at the end of the third week a metastatic abscess developed in the prostate which gave rise to an elevation of temperature and great dysuria and materially lengthened his convalescence. Ten days later the abscess ruptured through the urethra; improvement commenced; and he left the hospital in fairly good condition."

Case 2.—Mrs. C. L. D., age 23, had had no children. She was first seen February 1, 1918. Supravaginal hysterectomy with removal of both tubes and ovaries in August, 1917. Does not know what the operation was done for.

On January 31, 1918, while down town shopping she was suddenly seized with pain in the right side of the abdomen, radiating downward toward the bladder. She was taken to a doctor's office, where acute appendicitis was diagnosed and a hypodermic of morphin given.

Physical examination was negative except for extreme sensitiveness over the right costo-vertebral angle and rigidity of the right half of the abdomen. No sensitiveness over the appendix

region. The temperature was 104.5° F., pulse 124. Some nausea existed, but no vomiting.

The urine showed a trace of albumin, a few red cells, a few pus cells, no casts, sp. gr. 1018, and an acid reaction. Cystoscopy revealed a normal bladder with normal ureteral openings, and ureteral catheterization showed the pathological elements to be coming from the right kidney.

Her treatment consisted of rest, a milk diet, water in large quantities and 10 grains of urotropin every four hours. Three days after instituting this treatment the temperature commenced to subside and reached normal on the tenth day. The urine was normal on the thirty-first day.

Case 3.—Miss N. L., age 20. came to the hospital January 6, 1919, from Charleston, Miss.

Since Christmas she had had frequent urination following an attack of influenza. Menstruation was regular and normal. On January 1 she was suddenly seized with pain in the right kidney region. Nausea and vomiting commenced at once and continued at intervals for five days. Her physician said she had fever until the present time, 'though her temperature was not taken.

Physical examination was negative except that her abdomen was flat with marked rigidity over the whole of the right half, and tenderness in the right lumbar region, which was quite pronounced. Blood count showed 15,000 white cells with 83 % polymorphonuclears. Urine had a sp. gr. of 1020 and showed a trace of albumin with a few red and white cells. Temperature 100° F. on admission.

Under treatment which consisted of rest, milk diet, water and utropin. her symptoms rapidly subsided and she left the hospital four days later.

Case 4.—Miss M. P., a teacher, age 40, had negative family and previous histories. The present illness began on January 28, 1919, with frequent urination and some pain in the bladder on urination.

Physical examination revealed a woman of slight build with but little adipose tissue. All organs were found normal except the heart which showed an old mitral stenosis, and the right kidney which was quite tender on palpation. At times the kidney was displaced downward and could then be very easily felt on account of the thin abdominal walls. It was increased in size, the enlargement being symmetrical and very sensitive

The temperature reached 104° on the third day, remained between 100 and 103° for four days, and rapidly subsided to between 99 and 101°, but did not remain normal until the twentieth day. After having been free of fever for five days she left the hospital, but her convalescence was interrupted by another rise which reached 103° and lasted about a week.

Delirium was manifest on the third day and was a more or less prominent symptom as long as the temperature remained up. Nausea was a marked symptom and was present throughout the acute stage of the disease.

Her blood count was 25,800 white cells and 89 % polymorphonuclears. Culture gave pure growth of colon bacilli. Urine examination: right kidney, heavy trace of albumin, a few red cells, a few pus cells, and no casts. 'Phthalein test showed 20 to 25 % in the first hour. Left kidney, negative. 'Phthalein test gave 35 to 40 % in the first hour. Of the numerous examinations of the urine, none ever indicated to the eye a pathological condition, i. e., no cloudiness or tinge of blood was seen.

Water, utropin and milk diet, with rest in bed, constituted the treatment. Her illness lasted about four weeks.

BLOOD TRANSFUSION; COMPARISON OF METHODS*

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A blood transfusion illustrated on paper would seem a simple operative procedure. Nevertheless, I have been much impressed with minor and multiple difficulties arising in the attempt to transfuse blood by quite a large number of good operators I have witnessed and in my own attempts to use the methods of several of the various authors.

I am well aware of the fact that the details of technic of a given author, in the hands of an imitator of his technic, are frequently not observed or are not taken into account in preparing for the procedure or are not put into manipulation in proper order and sequence.

For the smooth running of the technical phases of a blood transfusion, I know of no better plan than, having satisfied one's self of the possibility of difficulties, to consider and provide for them beforehand. Some of the common difficulties are: needling the vein of the donor and especially the recipient; clotting in the needles and tubing; clotting of the blood from unexpected delay; failure of the blood to run as desired in and out of the conveying intermediary; disjointing of connections of apparatus and spilling of blood; the necessity of too many hands in the pie; the failure of the donor or recipient to co-operate when brought to-

*An article, "A Simple and Easy Method of Blood Transfusion," descriptive of the apparatus and method, along with illustrative cuts, appeared in the *Journal of the American Medical Association* August 16, 1919, page 497 (Vol. 73, No. 7).

gether in the dramatic setting of an operating room. Just such an attempt to provide against these difficulties likely accounts for the various methods now on the market.

The chief methods of blood transfusion are classified by Miller as follows:

1. Direct method by means of: (a) suture of vessels; (b) the use of a cannula interpolated in the blood stream; and (c) the use of a cannula bringing the intima to intima.

2. Indirect or interrupted method consists of: (a) needle and syringe; (b) receptacle or intermediary, containing anti-coagulants.

3. Combination of direct and indirect methods: valve and syringe.

Direct suture of vessels has been practiced by Murphy, Carrel and Guthrie. Both artery-to-vein and vein-to-vein anastomoses have been employed. In the direct cannula methods both glass and metal tubes have been used, usually coated with paraffin. The Crile method of bringing intima to intima by means of a cannula was at one time much used. In this method the blood vessel must be cuffed over the cannula and inserted into the joining vessel.

There are several important objections to the direct method, of which the chief are: the difficulty of the operation, the destruction of the blood vessels used in both donor and recipient, and the impossibility of measuring accurately the amount of blood transfused. These methods have consequently very generally been abandoned in favor of one or the other of the indirect methods.

The syringe method, of which there are a number of modifications, has many advocates. The most used technic is that of Lindeman: cannulæ of various sizes are used to enter the veins of both donor and recipient and several 20 c. c. syringes are kept constantly washed in salt solution by an assistant; the blood is withdrawn from the donor and injected immediately into the recipient's vein.

Hartwell says:

"The attainment of the ideal seems to lie in the development of a method by which coagulation of the blood and other alterations are prevented during the time required to draw sufficient blood . . . . into a receptacle, connected by subcutaneous venous puncture with the donor and to empty it again through a similar puncture into the vein of the recipient, the two principles, if desirable, being carried out in separate rooms."

The most widely used anti-coagulant is employed in the "sodium citrate method," where the blood is withdrawn into a sterile receptacle and thoroughly mixed with sodium citrate in the proportion of one part of a 2 % solution in 10 parts of blood. This makes a 0.2 % solution of citrate with blood or one gram of citrate to 500 c. c. of blood. The blood may be injected into the recipient by any suitable means of intravenous medication.

Kimpton and Brown devised a tube to be coated with paraffin, composed of a glass cylinder with a specially curved cannula and a way whereby suction or pressure may be applied for withdrawing or injecting blood. The vessels of both the donor and recipient are dissected out, properly prepared and incised. The tapering cannulated bottom of the tube is inserted into the vein of the donor, blood withdrawn and immediately transferred into a similarly prepared vein of the recipient. Other paraffined tubes have been devised, chiefly by Curtis and Davis, Risley and Irving, and Satterlee and Hooker. By means of these paraffined tubes whole blood, unmixed with anti-coagulants, is given. Usually the veins of both the donor and recipient must be tied off and destroyed in that particular location.

Both Unger and Miller have devised a valve and syringe apparatus by which blood is transferred directly from a cannula inserted into the donor's vein to a cannula in the recipient's vein, thus combining the direct and indirect methods. Here again the veins are usually destroyed.

It is interesting to note that, while Satterlee and Hooker have used a paraffin tube method of transfusion and also have used hirudin as an anti-coagulant, in their latest article they favor sodium citrate as a coating for their special large pipet-cannula apparatus as the "best method of transfusion for general use." For this purpose they employ 20 to 30 c. c. of a 10 % solution poured into the pipet just previous to use and allow it to "flow over" the interior thoroughly by rotating it in

the horizontal position, and then drain the excess out through the tip.

This quantity of sodium citrate is sufficient for 250 c. c. of blood; also by this method some of the citrate remains in the pipet with the residual blood and does not pass into the vein of the recipient, so that only about 38 mg. per 100 c. c. of blood is used; 19 cg. to 500 c. c. of blood.

"A Report on Transfusion of Blood for Recently Injured" was offered the A.E.F. by the following committee: Crile, Boggs, Cannon, Moss, Vincent, and Lee. This report was published by the American Red Cross Society in France, May, 1918.

This committee concluded:

"1. The method of transfusion, under war conditions, which should be practiced in every front hospital of the A. E. F. should be the simplest one that will give absolute satisfaction.

"2. Of the many available methods, the citrate method has been adopted, because: (a) it is the simplest with respect to technic; (b) it is the simplest with respect to equipment; (c) it has given uniformly excellent results in a large number of cases, and the presence of the citrate has resulted in no practical disadvantage.

"Any disadvantages the citrate method may have, such as the use of a chemical reagent and a possible diminution in the coagulability of the recipient's blood, are virtually negligible.

"The paraffined tube method (with whole blood) or the method of preserved red cells (Robertson) have certain advantages, but the method by citrated blood has been adopted for general use, because it is the most practical under war conditions."

The amount of sodium citrate used was a 0.7 % solution with blood that is 3.5 grams with 500 c. c. of blood.

For obtaining blood, mixing it with citrate and delivering it to the recipient, the committee recommended the following apparatus: A one-liter bottle marked 100 c. c., 400 c. c. and 700 c. c. at the proper levels; one rubber stopper with two perforations, fitted with two L-shaped short glass tubes and the two connected by the intermediary of rubber tubing with a needle and glass mouth tube, respectively; another rubber stopper similar in all respects except that one of the glass tubes in the stopper extends to the bottom of the bottle and is connected by means of a long rubber tubing to the needle; a small ampoule containing about 3.5 grams of sodium citrate in 10 c. c. of salt solution, sterile; and a flask of salt solution.

The procedure involves the following manipulation under aseptic conditions: exposure of the bottle, opening the small glass ampoule and pouring the contents into the bottle and pouring salt solution from a flask upon the citrate in the bottle; assembling two rubber stoppers, one used for withdrawing the blood from the donor, the other for giving it to the recipient under a pressure-gravity arrangement, with glass tubes, rubber tubes, glass tubes again and needles; keeping the apparatus together at numerous joints while exerting suction or pressure to assure the flow in or out of the bottle; and management of quite a lot of rubber tubing.

I have taken as the main piece of my apparatus the small ampoule, containing 3.5 grams of sodium citrate in 10 or more cubic centimeters of salt solution.

This ampoule I have magnified or enlarged fifty times to a capacity of 500 c. c. instead of 10 c. c., using for this purpose a large glass ampoule of this capacity, commonly employed in France for preserving and giving prepared sterile salt solution; and to this I have added only two short rubber tubes to connect with the two drawn-out ends of the ampoule, with a needle in one rubber tube and an ordinary aspiration syringe or mouthpiece of glass tubing in the other. The apparatus is then complete.

The ampoule or receptacle is drawn out into a glass tube or cannula at both ends. One end is left straight and is beaded so as to hold the rubber tube with needle more securely, and the other glass tube end is looped so that the end of the tube may be closed by pressure of the thumb when held in the grasp of the left hand and so that the ampoule may be suspended by the loop to a piece of bandage around the neck of the operator. Thus prepared, 10 c. c. or more of salt solution with 3.5 grams of sodium citrate in solution is sucked up into the ampoule and both ends of the ampoule sealed in a flame. Any number of amopules may be prepared in the same way at the same time. The ampoule is covered with a double layer of cloth and sterilized in a pressure autoclave. The pieces of rubber tubing and needles are placed in test tubes plugged with cotton and likewise autoclaved.

The pump is boiled at the time of the

operation, if preferred to rubber tube and mouth-piece. Or the different parts of the apparatus, including the solution, may all be boiled at the time of the operation, if time is not a factor and it is not desired to keep the apparatus ready sterile on hand or if an autoclave is not available.

Apparatus assembled, the straight tube end of the ampoule is knicked with a file and a short piece is broken off; and the rubber tube bearing the needle is fitted on and tied with silk. A strip of bandage is looped around the bent end and the ampoule is suspended from the neck of the operator. With the use of the two hands, the donor's vein is needled. Now when the upper curved tube end of the ampoule is knicked with a file and broken off, the blood begins to flow through the needle into the ampoule to meet the citrate. If it is desired or necessary to hasten the flow, the aspiration pump is connected with the upper end by means of the piece of rubber tubing or the upper end is sucked upon by connecting the piece of rubber tubing and glass mouth-piece. The blood is agitated with the citrate as it flows. The very short rubber tube between the needle and the ampoule gives ample amplitude for shaking the ampoule. When the ampoule is filled, it is grasped in the left hand, with the left thumb pressed hard against the rubber tube and end of the bent glass tube at the top of the ampoule. The flow stops and the contents will not leak back out of the lower end, so long as the upper end is kept closed, when the needle is withdrawn from the donor's vein. The left thumb may be replaced by a small Crile vessel clamp, that both hands may be liberated for needling the recipient's vein. The ampoule filled with blood may hang from the neck of the operator or be placed on a table. The blood will not flow out.

At this point, the recipient's vein is either needled unexposed, or exposed, or again, exposed and incised with the incision in the vein held open by means of two small crochet needles in the hands of an assistant. (This is the only step in the operation where an assistant may be needed.) If the vein is incised the needle may be introduced or the glass tube end of the ampoule directly and unvested of tube and needle and tied in. If the blood does not flow in readily, the pressure side of the pump is put on, or the tube with mouth-piece. The flow may be stopped by dropping the pump and closing the upper end and beautifully controlled by blowing or sucking through the rubber tube and mouth-piece at the upper end.

The donor's vein should be needled against the blood stream, that is, needled toward the hand and the recipient's vein in the direction of the blood stream, that is, toward the head.

The above described manipulation can be done very quickly, in fact so quickly that the ampoule may be used paraffined and washed over with citrate for whole blood. So used, the recipient's vein is prepared before needling the donor.

Donors give 500 c. c. of blood willingly enough when needled and assured that even that quantity of blood will not hurt them and that it will quickly re-form, but do object to having their veins cut down upon and destroyed. Moreover, the individual soon ceases to be a donor with veins destroyed.

This is not the place for entering into a discussion of the relative advantages of whole blood over citrated blood, nor for giving a description of blood grouping. Vincent's macroscopic method, or in combination with Rous' method, is easy, quick and sufficiently accurate in all cases. Suffice it to say that blood compatibilities must be determined, but that the difference between whole blood and citrated, even in the concentration stated above, 0.7 %, and the danger of lessened coagulability of the recipient's blood, are not so great as one might be led to believe.

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DEAD TEETH*

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In the past there has been a serious lack of co-operation between physicians and dentists and a serious lack of co-ordination of their work. The physician commonly treated many systemic ills resulting from dead teeth only indirectly. The teeth themselves he regarded as out of his sphere. When decayed and dead teeth were found in the mouth of a patient, the physician advised him to see a dentist.

The dentist treated the patient's teeth. The dentist was a carefully-trained and skillful mechanical worker, but he lacked a knowledge of pathology. And the training of the dental college had done practically nothing to equip him for the solution of the most important of his problems—those incident to dead teeth. The dental college had, in fact, grossly misled him in regard to methods of treating dead teeth. It had even gone so far as to teach him how to kill teeth and to hide some of the results of the killing under crowns of gold.

All this was not surprising. The physician with his enormous field of work seemed to be justified in leaving the teeth and jaws to the dentist; and the dentist busy with doing what he had been taught to do, felt no need and no stimulus for study and investigation.

The surprising thing was that while the physician remained a student and investigator, realizing that new things were being discovered in his profession all the time, the dentist not only failed to study and investigate, but also seemed to believe that study and investigation in matters dental could result in naught but ill. Physicians encouraged me in my work and gladly accepted the results of my investigations. Dentists opposed me and met my results with hostility. Against scientifically demonstrated facts they took up arms of opinion. When opinion fell, they even resorted, in some cases, to personal vituperation. I received help and expressions of appreciation from physicians and medical colleges. From dentists and dental colleges I received only biased opposition.

But, one by one, dentists of late have been following physicians in accepting the facts which I have proved. Dental colleges, nevertheless, still persist in teaching young men to do things which have been scientifically proven to be wrong. They have not been willing, so far as I know, even to test the truth of my findings in regard to dead teeth. In matters of fact clearly open to proof or disproof, the dental college has done nothing. Complacently it teaches men to kill and treat teeth as of old. Obstinately it refuses to come out on the side of truth. The harm done by this reaches through the thousands of practicing dentists to the millions of patients whose health and very lives are being sacrificed to the obstinancy, ignorance, laziness, or politics of the teachers of dentists. We can look for little improvement in the methods of dealing with dead teeth as long as the blind continue to lead the blind.

Despite the opposition of many dentists and dental colleges, I have demonstrated clearly that the oft-quoted contention that a tooth may receive nourishment by means of or through the cementum surrounding the root, is absolutely wrong. I have proved conclusively that when the pulp is removed from a tooth, the only source of nourishment for that tooth is removed. The pulpless tooth is in every sense of the word dead. And every dead tooth, no matter by what method and with what skill it is treated, will become putrified and infected. No one has yet been able to cite a single devitalized tooth which six months after the time of devitalization was not found to be infected.

I have repeatedly called attention to the many metastatic sequelæ resulting from septic conditions in the jaws: septic bronchitis; asthma; pneumonia; "rheumatic" joints, muscles, and nerves; heart and kidney lesions; skin eruptions; chronic toxemias; bacteremias; and anemias. I have shown that dead lower molars may cause infections in the inferior dental canal and that drainage from these infections through the inferior dental foramen results in tonsilar phlegmons, Ludwig's an-

*Histological work done in the Surgical Pathological Laboratories of Leland Stanford, Jr., University, San Francisco, Calif.

gina, and Bell's palsy.[1] From dead upper molars there frequently result septic collections under the antral membrane and direct perforations of the antrum of Highmore.

But even more important than the systemic ills resulting from the retention of dead teeth in the jaws is the fact that the cause of such ills may not be removed when such teeth are extracted. Repeatedly, I have indicated that after a dead tooth was extracted there continued a low grade suppuration with dangerous systemic sequelæ and with absorption of alveolar process which rendered it very difficult to construct a satisfactory plate.

These facts, which I have published in detail elsewhere,[2] lead inevitably to the conclusions that no dead tooth should be permitted to remain in the jaw and that the ordinary method of pulling or extraction is generally not sufficient for the removal of septic areas.

Dead teeth should be removed by surgical operations rather than by the old method of extraction followed by blind curettement. Even the idea of curetting after extraction of dead teeth, which was advocated for the first time by me in 1915, met with no response. It was to be expected, I suppose, that the idea of a surgical operation should meet with opposition and then be claimed by others as the dental world became convinced of the necessity of it.

The operation for the removal of dead teeth which I have used and advocated since 1915 permits the thorough removal of dead teeth and surrounding infected structures with no pain to the patient and little shock.

This operation has been described somewhat in detail elsewhere.[3] It should be clearly understood, however, that a surgical operation, far from simple in many cases, should not be attempted by a dentist who lacks the necessary surgical and pathological training and experience. Such training and experience are not furnished by the dental college, whose professors seem to be lagging behind the tail end of the procession of progress. The dental college will never train dental surgeons so long as its professors remain blind to the need for surgery and continue to teach men to kill teeth—to do the very thing which renders surgery necessary.

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Head Bldg.

AUTHORS' ABSTRACTS

Surgery

Tumors of the Bladder: Their Diagnosis and Treatment. Howard A. Kelly, Baltimore, Md. Paper read before the American Gynecological Society, Atlantic City, June, 1919.

Kelly began with a brief historical review, recalling the days when it was not uncommon for the specialist to examine the bladder by boring his finger in through the urethra, an act followed commonly by incontinence. With the cystoscope all this became changed. He insisted upon the great advantages of the open-air cystoscope in diagnosis and treatment. Its simplicity is in its favor and there is no murky medium to be changed, and with one instrument it is possible to sweep rapidly over all the walls of the bladder and note every lesion.

He then spoke of the importance of utilizing the natural landmarks as well as an artificial division into hemispheres, easily adopted from the viewpoint of the internal orifice of the urethra. Using the end of the speculum as a measure and these landmarks, the first step is to plot out all areas of disease and note them on a simple chart. This gives plan and precision to the treatment. Malignancy in bladder tumors is not always to be determined from the microscopic standpoint. Some tumors which are classified as malignant by the pathologist are clinically benign, and vice versa. An ulcerated and infiltrated base is the clinical test of malignancy.

The treatment is occasionally by excision, but as a rule by fulguration and radium. Fulguration does well in some cases, but often fails. Radium is applied in the form of emanation on the end of a sound, introduced and applied di-

rectly to the growth through the open cystoscope, or held a little away from it. A proper dosage is 250 millegram hours over an area 2 by 2 cm. per month. If one is treated singly by 1,000 millegrams, then this means a total application of 15 minutes, and if this is divided up into four treatments, as seems best, then each treatment lasts only about four or five minutes. In this way many cases have apparently been cured, including even those which were malignant and infiltrative.

The Disease of Theories—Eclampsia. James R. Garber, Birmingham, Ala. Charlotte Medical Journal, Vol. 79, No. 5, May, 1919, p. 201.

In the discussion the author insists upon a definite distinction's being made between toxemia, with or without convulsions, and acidosis. The first, he believes, is the end-result of non-elimination or inactive emunctory organs, while the latter is primarily a metabolic disturbance following the ingestion of an unbalanced diet.

Of the many theories advanced as to the etiology of eclampsia, it seems that those of focal infection, of fecal stasis and of autolysis of the placenta are responsible for the greatest per cent. of pregnancy toxemias. The author offers case reports in substantiation of his views. He further stresses the importance of declaring a difference between evacuation of the bowels and actual elimination, showing the fallacy of relying upon the woman's judgment as to what constitutes elimination.

Arguments are offered in behalf of educational propaganda that would tend to arouse profound regard and solicitude for the pregnant woman, as the writer holds that maternal potentialities are fetal potentialities.

Tuberculosis of the Uterus. James R. Scott, Los Angeles, Cal. California State Journal of Medicine, February, 1919.

Tuberculosis of the uterus, exclusive of cervical involvement, is relatively rarely recorded in the literature, although careful examination and better diagnoses would reveal many cases hitherto unobserved. It occurs at any period of life. The earliest recorded instance occurred in a child two months of age, while the oldest patient to suffer from this affection was eighty. The majority of cases are seen between twenty and thirty.

It is grouped in four main types: ulcerative, miliary, interstitial and peritoneal, the ulcerative type being a more advanced stage of the miliary form. This disease may be either primary or secondary. The primary form is much the more uncommon, there being but fifteen recorded cases of undoubted primary disease. The primary form may arise from infection ascending from the perineum through the vagina, due to exposure to contaminated instruments, linen, soiled hands, or to coitus with a male suffering from tuberculous orchitis or epididymitis. The secondary form is more common and arises by transmission through the blood or lymphatic system or by direct extension from an adjacent tuberculous focus.

The symptoms include menstrual difficulties, especially metrorrhagia, feeling of weight in the pelvis, vaginal discharge, indefinite pelvic pain, particularly hypogastric pain which increases on long standing and radiates to the lumbar region, upper thorax and along the perineum. Painful menstruation, painful defecation and progressive constipation are especially significant.

The diagnosis is not simple. The presence of pain, symptoms of uterine inflammation, the bacteriological examination of the vaginal discharge, and curettage with microscopic examination of the mucosal fragments will permit a diagnosis. The differential diagnosis lies between carcinoma, chronic endometritis, syphilis and tuberculosis.

The prognosis is gloomy except in the rare primary cases.

The treatment of the primary cases is hysterectomy. In the secondary cases the only justifiable treatment is the usual dietetic and hygienic regimen used in connection with pulmonary tuberculosis. Occasionally when the uterine mucosa alone is involved, curettement will be followed by a cure, but whenever the physical condition of the patient will permit of such extensive shock, hysterectomy is the only treatment to be seriously considered.

Puerperal Gangrene of Both Legs, Extending to Knees; Double Amputation; Recovery. Chas. F. Hicks, Welch, W. Va. The West Virginia Medical Journal, Vol. 13, No. 9, March, 1919, p. 337.

Dr. Stein, of New York, reported 78 cases, November, 1916. These were all to be found in the literature.

Case.—A woman, age 20 years, fourth child, normal puerperal period. Gangrene started in the great toes four weeks after confinement; appeared gradually, slowly and symmetrically; and had sharp pains, slightly elevated temperature and accelerated pulse. Repeated urinalysis negative.

Past and family history of no importance. The gangrene grew progressively worse. Double amputation above the knees was done about 30 days from the time gangrene made its appearance.

Histological examination of the specimen shows that the skin is not broken, only small necrotic areas. The fascia on the dorsum and plantar region is necrotic. The tendons show necrosis, involving the muscles. Thrombi of blood clot are in the tibial arteries, extending to the bifurcation of the popliteal. The patient recovered.

The Role of Ascariasis in Gall-Bladder Disease. J. Aviles, San Juan, Porto Rico. Surgery, Gynecology and Obstetrics, Vol. 27, No. 5, November, 1918, p. 459.

The author states that the pathogenic power of the ascaris lumbricoides depends upon: (a) a toxin; (b) the migration of the parasite to other parts of the body, causing infection; and (c) the mechanical disturbances.

Aviles says that the worm is a potential fac-

tor in the production of dangerous complications. He found in the literature fatal cases where at the autopsy the parasite migrated into the gall-bladder and biliary ducts.

Aviles cites his own personal case of a woman who for 26 years had been suffering from attacks of colic-like pain over the right upper quadrant of the abdomen and occasionally she vomited stomach secretion mixed with bile. On some occasions she expelled round worms with the vomiting, and in one instance the vomiting of an ascaris relieved the pain. A probable diagnosis of cholecystitis with calculi was made. Cholecystotomy was performed. The walls of the bladder were hypertrophied, but no rugosity of the mucosa was evident. Aviles did not find any calculus, but a big ascaris lumbricoides about 8 inches in length, partially obstructing the cystic duct. The operation was completed by draining the gall-bladder. The patient made an uneventful recovery and all the symptoms existing previous to the operation disappeared. Anti-helminthic remedies were administered during the convalescent period.

1. The diagnosis of gall-bladder or of biliary duct disorders due to migration of ascarides lumbricoides is not easy.

2. Such disturbances are rare and at times the prognosis is grave.

3. An individual who is seized with hepatic colic-like pain, accompanied with vomiting of Ascarides lumbricoides, has the syndrome necessary for suspecting that the case is one of migration of the parasite or parasites into the biliary ducts or gall-bladder; and unless the symptoms subside, surgical intervention is indicated. Anti-helminthic remedies must be administered as a prophylactic measure in those cases in which a history of ascariasis accompanied disorders of the gastrohepatoduodenal system. In those cases in which surgical intervention has been practiced, antihelminthic remedies must be given to avoid new serious complications.

The Present Status of the Treatment of Flat Feet. Lieut. S. B. Burk, M.C., U. S. Naval Reserve Force. U. S. Naval Medical Bulletin, Vol. 13, No. 1, January, 1919, p. 46.

The causes of flat feet are classed as constitutional and local.

The constitutional are grouped under: (1) congenital; (2) neurotic; (3) inflammatory; (4) traumatic; and (5) toxic. Occupation is rarely responsible (Merrill).

The local changes are knock-knee, poorly fitting shoes, and conditions producing "toeing out." Toeing out produces:

(1) External rotation of the legs; (2) twisting of knees and straining of joints; (3) outward rotation of femur favors backward rotation of the pelvis on its transverse axis with elevation of the pubis and a decrease in normal lordosis; and (4) forward displacement of hips and shoulders, increases the lower thoracic curve, favoring a stoop-shoulder position.

Meisenbach describes two types of flat foot. The flexible is associated with a low longitudinal arch, pronation of the ankle, and an atonic condition of the muscles of the leg and foot. Pain is present in the weight-bearing position.

The rigid or reversed arch is caused by: (1) thickening of the metatarso-phalangeal girdle; (2) apparent shortening of the flexor tendons of the second, third and fourth toes; and (3) presence of callouses on the under surface of the arch.

Katzenstein holds that weakness is present in the ligaments. Soule summarizes the pathology as a change in the astragalo-navicular articulation, as seen by roentgenograms.

The symptomatology consists of pain and the phenomena resulting from toeing out. The shoes show an unequal wearing down. The trudging gait and the stooping shoulders are characteristic. In addition, the patients are easily fatigued and are mentally apathetic. Tracings in the weight-bearing position shows prominent inner margins.

The treatment depends upon the degree of the flat foot. Attempts should be made to relieve local and constitutional causes. For mild cases, the recommendations are adhesive strapping, proper shoes, and the graded exercises of McKenzie.

For the severe cases operative treatment is advised. Katzenstein injects 0.5 c. c. of 4 % formaldehyde into the weak points of the tibio-navicular ligament, with the idea of hardening this ligament, followed by a plaster of Paris cast for a month. Local anesthesia and morphine are used if necessary.

Meisenbach performs an osteotomy of the second, third, and fourth metatarsal bones on the rigid type and places a felt pad under the arch, and then a plaster of Paris cast up to the knee. He claims good results.

Arnd transfers the tendo Achillis to a deeper groove chiseled into the posterior aspect of the scaphoid. The results of this method have been satisfactory during the eighteen months to date.

Soule denudes the head of the astragalus and the concave surface of the navicular bone and unites them with an autogenous bone peg from the crest of the tibia. He claims excellent results.

Organized Surgical Reconstruction. Major Fred H. Albee and Lieutenant Elmer P. Weigel, M.C., U. S. Army. The International Journal of Surgery, Vol. 32, No. 4, April, 1919, p. 97.

The field of plastic surgery, widened by the exigencies of the world war, offers possibilities of service unparalleled in the history of the profession. Most important has been the revolutionizing influence of tissue transplantation. Assured of the safety and efficacy of the bone-graft, and aided by recently developed methods of wound treatment, the surgeon at the front has preserved all possible limbs for later plastic procedure.

At U. S. Army General Hospital No. 3, the possibilities of plastic surgery have been strikingly illustrated. Formation of new fingers to restore function of the hand in two cases of destruction of four fingers with the greater portion of adjoining metacarpals, has been accom-

plished by means of synthetic transplantation of tissues. Extensive loss of bone has been replaced by tibial grafts, even to the length of ten inches. Restoration of shoulder motion has been accomplished by a truss work of grafts, with the arm in such a position that loss of motion of the shoulder joint was compensated by scapulothoracic motion. In cases of destruction of the head of the humerus, where the musculature of the shoulder was not too severely damaged, motion of the shoulder has been restored by the implantation of the head of the fibula to replace the head of the humerus.

Important adjuncts to the military plastic surgeon in his work of restoration of substance and function have been the services of the physical therapeutist and the vocational expert in the post-operative care of the patient. In such methods of organized after-care of surgical cases the best civilian institutions have thus far been lacking. It is to be hoped that many of the lessons learned of the value of organized effort in our military hospital service are to be conscientiously applied to all branches of civilian practice.

Observations Regarding the Indications for the Operation of Cranial Decompression. William Sharpe, New York, N. Y. Surgery, Gynecology and Obstetrics, Vol. 28, No. 4, April, 1919, p. 407.

The operation of cranial decompression has been frequently misinterpreted and confused with other cranial operations. It presupposes the existence of an increased intracranial pressure—otherwise it is not a decompression. A small trephine opening can be considered only theoretically as a cranial decompression. There are three qualifications essential to a cranial decompression:

1. The presence of an increased intracranial pressure;

2. The removal of a large area of the vault—usually three inches in diameter and best situated in the subtemporal area; and

3. The dura must be opened and allowed to remain open.. The dura is inelastic in adults and no real and permanent decompressive effect can be obtained unless it is opened and then not sutured together again.

The operation itself may be considered as a means solely of decompression; then of decompression plus exploration; and lastly of decompression plus drainage.

The following intracranial conditions for which the operation of subtemporal decompression (the operation of choice) may be advisable are described briefly as follows: brain tumors; brain abscesses; hydrocephalus; brain injuries with and without a fracture of the skull and having high intracranial pressure; selected cases of cerebral spastic paralysis in children due to an intracranial hemorrhage at birth; and selected cases of organic epilepsy—Jacksonian in type and associated with an increased intracranial pressure; and early conditions of localized meningitis, especially following otitic disease. The technique of the typical subtemporal decompression is illustrated by fifteen drawings.

In conclusion he states that the operation of cranial decompression is one that should be used much more frequently than it is at present. Especially is this true in the conditions of brain tumor, brain abscess, brain injuries and in selected cases of spastic paralysis due to an intracranial hemorrhage at birth.

The subtemporal method of cranial decompression is the ideal route; besides being less difficult technically, it exposes an area of the brain most frequently involved. This permanent decompression opening does not weaken the skull in that the thick overlying temporal muscle protects it adequately so that herniae cerebri are not to be feared.

The operative mortality is low. Patients with intracranial conditions should not be permitted to become blind nor to reach the dangerous stage of medullary compression without a subtemporal decompression being performed early.

A Non-Operative Procedure for the Treatment of Cervicitis and Endometritis. A. P. Hollender and W. M. Gratiot, Mineral Point, Wis. The American Journal of Obstetrics, Vol. 79, No. 496, April, 1919, p. 523.

Curettage has long been employed as the radical treatment for chronic cervical and endometritic disease, although the dangers incurred with the curet in these conditions are fully recognized.

Millions of women suffer from chronic uterine infections. Some submit to operation while others live in dread of it and allow their ailment to extend to other organs. Until a short time ago, when Emil G. Beck, of Chicago, suggested the application of the bismuth paste method, there was not a suitable non-operative procedure available for the cure of localized uterine disease. Since the inauguration of this method—the success attained with it—curettage with some has fallen into disrepute.

Modus Operandi

1. In erosions of the cervix, 40 % silver nitrate is applied with a cotton applicator.

2. About one dram of Beck's bismuth paste (a mixture of 10% bismuth subnitrate and 90% vaseline) is injected into the cervical canal either by the use of a glass intrauterine syringe or a special metal syringe adapted for this purpose. With the metal syringe the paste can be accurately gauged as to quantity.

3. The paste must be cold when injected. This is very important, as a liquid paste may ascend into the tubes and produce great danger.

4. From two to four injections weekly suffice, and a cure is usually produced in a comparatively short time.

Bismuth paste gauze, prepared by dipping long strips of gauze in a semi-liquid paste, serves well for vaginal packing, especially in cases of vaginal leucorrhea.

Discrimination in the selection of cases is important. It is also very essential that the proper instruments be employed, otherwise successful results without dangerous consequences can not be attained.

New Cystoscopic Finding in Cases of Enuresis. Capt. Ivy Albert Pelzman, M.C., U. S. Army. The Military Surgeon, Vol. 44, No. 4, April, 1919, p. 383.

In this preliminary report, which is based upon the examination of sixty cases of enuresis, a new cystoscopic picture is described. The history in each of these cases was practically identical. The condition starts in infancy. There was always a history of at least one other member of the family affected by the same condition and in several more than one additional member of the family was so affected. The men were neurotic and of an unstable type. Almost without exception they would state that they were "nervous." Cystoscopic examination disclosed no residual urine—the bladder was filled with from 300 to 400 c. c. of sterile water. A trabeculated bladder was found, trabeculation varying in degree from a mild to a very marked type. In most instances the floor of the bladder was involved, the trabeculations radiating outward and posterily from the ureteral orifices. In the more marked cases the trabeculations involved the entire bladder wall. The findings were practically the same as those presented by the trabeculated bladders of tabetics. Very few of the cases showed any evidence of cystitis, although in several there were signs of a moderate degree of trigonitis. There appears to be no doubt that the enuresis present in these cases is a symptom of a neurological condition. There is a condition which is caused by a hyper-irritability of the nerve supply of the bladder. The hyper-irritability is either produced by a definite organic disease of the vesical nerve supply or by a neurosis.

Duodenectomy: A New Method. James J. Moorhead and Herbert E. Landes, Chicago, Ill. The Journal of the American Medical Association, Vol. 72, No. 16, April 19, 1919, p. 1127.

Following a brief statement of the embryology, anatomy, histology and physiology of the duodenum, and mention of the work done by others, a method is described whereby the entire duodenum of the dog may be extirpated and the pancreas wholly preserved.

The operation is performed in three stages: (1) division of the pylorus, removal of the mucosa from the duodenal end for a distance of about 3 cm. and closure; the first part of the jejunum is brought up in front of the colon and joined to the open gastric end; (2) two weeks later the common bile duct (passed through the dorsal mesentery) and the major pancreatic duct are transplanted into the jejunum 3 cm. distal to the gastro-jejunostomy; (3) after an interval of 14 days the duodenum is opened, long clamps applied to the wall and the mucosa of the duct-bearing portion removed by a sharp uterine curet; beyond this point a typical intestinal resection completes the duodenectomy.

Advantages: The gastro-jejunostomy is made at the true physiologic location, the pylorus. This region is undisturbed in the subsequent steps. The biliary and pancreatic secretions are saved. The jejunum serves as a substitute for the duodenum. Cholecystenterostomy in the dog is frequently fatal. Cholecystogastrostomy disregards well established principles of digestion.

The authors state that the usual technic of intestinal resection can not be applied to the duct-bearing portion of the duodenum. The final stage as described disturbs neither the pancreas nor the functioning alimentary tract, thus reducing to a minimum the after effects of a severe operation.

Dogs thus operated upon will live in a normal state of health. The duodenum, therefore, is not essential to life.

A Brief Study of Goiter, Based on One Thousand Cases Operated Upon. E. P. Sloan, Bloomington, Ill. Illinois Medical Journal, Vol. 35, No. 5, May, 1919, p. 226.

Out of the 1,000 cases, 445 had pressure symptoms; 227 were typical exophthalmic cases. The youngest was 7, the oldest 69 years of age. Seventy-seven had intrathoracic projections and 141 substernal projections. Three were malignant; 119 had been previously treated by serums; 3 were pregnant when operated upon; and 27 ligations of the superior thyroid artery and 32 ligations of the inferior thyroid were done in the preparation of the patients for operation. Four hundred and nine were given salvarsan. A diagnosis of endocarditis was made in 530; auricular flutter in 37; and auricular fibrillation in 182. Organic lesions of the heart were present in 166.

Complications due to the operation were as follows: One patient had a bad scar. No injury has occurred to the recurrent laryngeal nerve. Three parathyroids were removed inadventently; seven deliberately. No cases developed tetany. No effect due to their removal was discovered.

After results were: deaths, four; not improved or made worse by operation, none; those who are still invalids but definitely better than before operation, thirty-two; satisfactorily improved, four hundred and thirty-one; and complete recovery, five hundred and thirty-three.

The Treatment of Chancroids and the Prevention of Buboes. Lieutenant G. W. Millett, M.C., U.S.N. U. S. Naval Medical Bulletin, Vol. 13, No. 1, January, 1919, p. 170.

The principal causative agent in the formation of buboes is from the secondary infection of the primary ulcer. When an ulcer is cauterized with nitric acid, carbolic acid or any other strong reagent, much necrosis of the surrounding tissues is formed which makes a splendid medium for secondary infection. The prevailing organism found in buboes is staphylococcus or streptococcus, which comes from the secondary infection. Some authorities claim that the Ducrey's bacillus is never found in the bubo. The author's treatment is to clean the chancroid ulcer with peroxide or chlorazine and then apply 10 % copper sulphate twice daily; and after each application apply aristol. The author was able to reduce the number of cases developing buboes, more than 75 % by this method.

EYE, EAR, NOSE AND THROAT

THE DEVIATED SEPTUM*

By R. W. Hooker, A.B., M.D.,
Memphis, Tenn.

There is no practicing physician who has not some time been asked the question, "Doctor, can you cure catarrh?" Now, one might just as well ask if you can cure fever. You will please remember that what goes by the name of catarrh is only a symptom and not a disease. It is Nature's outcry against some disturbed function, usually of the turbinate bodies, which, in the large majority of instances, have been imposed upon by a big thickened, crooked, spurred septum leaning over on them like the big boy who makes a pack-horse out of his little brother.

Among the etiological factors causing a deformed septum we may mention first the highly-arched, or so-called gothic palate, which during the tender years of youth can so easily make the septum swerve from its normal course. It is no doubt influenced by faulty dentition. Heredity also plays its part. I have often noticed several members of the same family whose nasal deformities were exactly alike, the septum swerving to the same side, and even the spurs and ridges were identical.

Unquestionably traumatism is a prime cause in many instances of nasal deformities. When we recall the many falls and bruises of childhood we can easily understand this. The mother readily remembers the first episode in the life of the babe when it tumbles from the bed, nearly always landing on its nose, and from that time on through the games of childhood its nose is the shining mark for some casual lick from the baseball bat to the fisticuff with all the intervening series of opportunities for injury to the nose. I recall one patient whose septum was badly deformed from being kicked on the nose by a mule. Some rhinologists claim that deviation is produced by irregular development of the bones of the face.

In this, as well as all other conditions, neurotic influence plays its part. I am well aware that this is a vague, mysterious term which, like a vari-colored blanket, may be broadly extended to cover a multitude of faults. Some one has said that we are but a bundle of nerves. With what nervous impatience we run our course in life and accomplish so little; how very few get absolute control of their voluntary nerves. The small area covered by the olfactory nerve is the most sensitive membrane in the human body, and this lies well within the path of the upper respiratory tract, and since the very breath we breathe passes to and fro over this space, we can well understand how completely this nervous mechanism may influence the entire body. Just a gentle whiff of the most delicate perfume may sometimes hold us for a moment spell-bound and awaken within us a chain of memories that go racing back through the years. How intimately associated with the events of life is our delicate sense of smell.

Following along after these causative factors, there comes tracking a series of complications. At first we notice a slight swelling, soft and spongy, over some portion of the deformed septum. Through undue exposure or prolonged excitation, there is a rapid watery secretion and a general infiltration of new cells into the meshes of this tissue. Passing on through the stage of hyperplasia in due course of time a hypertrophic condition ensues with its dense membranes casting off a thickened mucus filled with broken down leucocytes; and thus we have the condition commonly known as catarrh. Now, the function of the middle turbinate is to warm and moisten the air so that it may be received by the lungs without shock to these vital organs. Naturally anything which deranges the function of these little bodies will cause them to stagger under their load until by and by they give up their very life's blood in broken-down cells through profuse secretion. In most cases this condition is brought about by a

*Read before the West Tennessee Medical Association, Dyersburg, Tenn., May 29, 1919.

crooked septum impinging upon one of the turbinates, thus disabling the one and overloading the other. In this connection I might say that all of us who have practiced medicine any length of time have not failed to notice the intimate connection between the erectile tissue of the nasal cavities and that of the generative organs. Excessive venery will cause an excitation of the erectile tissue of the nasal cavity with its consequent secretion. Is it unreasonable, therefore, to conclude that the aforementioned excess might play an important part in nasal disturbances?

Those who have septal deviation may go for many years without complaining of any pronounced discomfort save a tendency to "take cold" and a "ringing in the ears." This you and I recognize as a hyperplasia of the mucous membrane simply through some undue exposure and not necessarily an infection. By and by the forces which Nature has in reserve will break down and the long chain of sequellæ will come tumbling in. Chronic hypertrophic rhinitis, with its new cell proliferation, oftentimes invades the sinuses, and always occludes one or both of the Eustachian tubes. Both middle and inferior turbinates on the encroaching side will shrink away, while those of the opposite side will enlarge and even become polypoid.

If the proper treatment is not instituted here, atrophy of all nasal membranes will ensue, which is nothing less than fatty degeneration of cells, going on to the final stages of ozenic catarrh, too offensive almost to be mentioned and for which there is no remedy save mere palliative cleanliness.

One of the first symptoms is a disturbed breathing or a stuffiness, intermittent in type and alternating, perhaps, followed in time by a "dripping" which the patient endures for a while with the thought that it is only catarrh and will pass away; but its eternal persistence will finally drive one to sheer desperation like the constant dropping of water upon a rock will wear its way into adamantine. Then a doctor is consulted. What will he tell the patient? Many an asthmatic patient has gone to his grave enduring the ever-recurring distress at whose prodomes he turns deathly pale and breaks into cold perspiration; when if he had only known it was a reflex nasal asthma caused directly by an overworked polypoid turbinate and indirectly by a crooked septum, there would have been a remedy. I have a conviction ever strengthened by observation that most cases of hay-fever are functional and are caused either by a crooked or thickened septum and hence are curable by the proper procedure.

Now as to treatment. All medicinal measures are only prophylactic and palliative, the most effective being hot normal saline irrigation. There is only one treatment and that is surgical — the submucous resection, thorough and complete. The present method of removing the septum submucously is the most scientific way of treating the case instead of endeavoring to straighten it or to saw off spurs and cauterize ridges. When properly done it is lasting and revolutionizing in its benefits to the patient, who suffers very little inconvenience from so extensive an operation. By way of frankness, I desire to state that it is not easy to do from the standpoint of the surgeon. There is a certain amount of time in which one must necessarily go slowly in lifting up the perichondrium almost cell by cell so as to avoid a tear (with consequent perforation) and in checking all hemorrhage as we go. I am an advocate of a very thorough removal of the septum, especially the lower portion, digging well down under all spurs and ridges to the very floor of the nasal chambers, else the best results will not be obtained.

AUTHORS' ABSTRACTS

Eye, Ear, Nose and Throat

Scar Tissue Conjunctivitis in Animals: Its Relation to Insects and Trachoma. F. B. Eaton, San Francisco, Calif. American Journal of Ophthalmology, Vol. 2, No. 2, February, 1919, p. 81.

The essence of this paper is the evidence afforded by the clinical pictures of veterinarians that there exists, long known but unrecognized, a so-called follicular conjunctivitis in animals, horses, cattle and dogs, having all the chief clinical features of trachoma, i. e., scar tissue, entropion, pannus, etc.

In parts of Illinois this disease is attributed by the people to certain biting "August" flies (presumably species of Tabanidæ, i. e., horse-flies) which bite by preference the eyelids at

the inner canthi. As no known conjunctival disease, save trachoma, produces scar tissue, the presumption is that this animal scar tissue conjunctivitis is a veritable trachoma, but the proof can only be established by plasma staining.

The author points out that the Tabanidæ breed in water, can only live near it, and that trachoma is most prevalent, endemically, in southern Illinois, where there are many streams, and in the Kentucky highlands, where there are many creeks, and where the inhabitants live in the creek beds, there being no roads.

The hypothesis advanced is that while trachoma is mainly spread by contagion, the source in nature of the virus (which itself is ultramicroscopical) is of insect origin, and that where the disease is endemic, certain biting flies convey the virus of animals and man. The problem can best be solved by cordial co-operation between entomologists, veterinarians, parasitologists and ophthalmologists.

An Unusual Case Resembling Pulmonary Tuberculosis: Long Retention of a Foreign Body in a Bronchus. I. S. Kahn, San Antonio, Tex. Texas State Journal of Medicine, Vol. 14, No. 11, March, 1919, p. 350.

In June, 1902, the patient, a young woman, had a severe pneumonia of the left side. Three days following the crisis, which occurred on the ninth day, she had a chill followed by fever, cough and expectoration lasting four months, during which time chest paracenteses were performed four times without securing pus. For the next fifteen years off and on she ran a typical mild tuberculosis course with fever, cough and expectoration, often bloody. She was treated for tuberculosis in various institutions during that period. At one time she was free from symptoms for two years. In 1915 she had a fair-sized hemorrhage followed by a light attack of pneumonia, and her cough has since persisted. Following six months of rest-cure terminating six months before she was first seen, she had another hemorrhage. Her fever has persisted ever since then.

The history and clinical course of this case were typical of tuberculosis. Examination revealed partial atalectasis of the left lower lobe with moisture well limited to the central portion of this area. Expectoration was slight, but blood-tinged and foul. Sputum was repeatedly negative, a guinea pig inoculation showing pneumococcic septicemia. X-ray examination showed a dim foreign body in the left primary bronchus and no evidences of tuberculosis.

A small sea shell "swallowed" fifteen years previously was removed by bronchoscopy by Dr. Sidney Yankauer, New York, and followed by an uneventful recovery and freedom from symptoms for the past two years.

An Old-time Victim of Ametropia and a Modern Instance. E. J. Gardiner, Chicago, Ill. The Journal of the American Medical Association, Vol. 72, No. 20, May 17, 1919, p. 1439.

Illustrating the evil consequences of uncorrected astigmatism, the writer comments upon two cases in which the outcome was similarly deplorable. One victim had to relinquish his favorite literary occupation; the other was forced to abandon the study of his chosen profession.

The "old-time victim" is Samuel Pepys, who in his famous "Diary" accurately describes the symptoms of the eye trouble that forced him, when but thirty-six years old, to give up writing his journal. So detailed is the record of his sufferings that it is possible not only to make a diagnosis of the affection, but also to venture a prescription for the glasses that would have enabled him to continue his work.

The "Modern Instance" is a middle-aged man from Boston who, on account of persistent asthenopia, was forced to leave college, where he was studying civil engineering, and go into a business that did not require the use of his eyes for close work. He had worn glasses since he was a boy, but an astigmatism of a quarter diopter had not been detected, and in consequence his asthenopia persisted. The correction of the astigmatism entirely cured his asthenopia, but as he put it, it was too late, for his life had been ruined by the inability to use his eyes to study his chosen profession.

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EDITORIAL DEPARTMENT

SOUTHERN MEDICAL ASSOCIATION
Asheville, North Carolina, "America's Beauty Spot"
November 10-13, 1919

ASHEVILLE PREPARATIONS

No city in the South, nor in the world, has a more progressive medical profession than Asheville, N. C. Not only does the average physician in Asheville measure up to a high standard of ethics and attainments, but among its physicians are a number of men of national reputation. Of course, the reason that Asheville has attracted so many high-class men in the medical profession is because it is one of the leading, if not the most important, health resorts in the United States; and one of the reasons why many thousands of the best people from all over the United States go to Asheville seeking health is because it is known that not only can one derive the benefits of a wonderful climate, but when in need of medical and surgical service, he can secure the best and most skillful attention to be found in the land.

The Secretary and the Business Manager of the Southern Medical Association have returned from a visit to Asheville to confer with the Committee on Arrangements for the November meeting. They found there the most enthusiastic interest among the entire Asheville profession; and the committees that have charge of the plans for the November meeting have completed arrangements which assure a delightful and profitable meeting. From the viewpoint of meeting places, the facilities at Asheville can not be surpassed. All of the eleven sections and the general meetings will be cared for in a way that will add greatly to the comfort and convenience of those fortunate enough to go to Asheville in November.

Asheville is unquestionably one of the most attractive spots in the world. When one visits there it is easy to understand how hundreds of thousands of people have gone to that city for health and recreation. It seems to be the place of all others where physicians go with their families, because one meets them there from all parts of the country, from the South in the summer, and from the North and East in winter, but never before November will Asheville have entertained so many physicians, distinguished, and those not so well known, as will attend the November meeting of the Southern Medical Association. Physicians who have visited Asheville before will go back for another view from Sunset Mountain, or to enjoy the gastronomic delights and other creature comforts of Asheville's wonderful hotels; and many who have not visited the mountains of North Carolina before will take advantage of the low rates and the medical meeting of the year to see the country in which so many of their patients and patrons have found health and enjoyment.

THE DISINFECTION OF MALARIA CARRIERS

In a paper read before the Mississippi State Medical Association,* Bass calls attention to a very practical method of controlling malaria in infected districts. He

*Bass: "Studies on Malaria," etc., Southern Medical Journal, June, 1919, p. 306.

gives results of the intensive treatment of malaria in Sunflower and Boliver Counties, Mississippi, and concludes that if physicians, even in badly infected localities will completely cure the cases of malaria which they treat, in one year, without any effort at drainage or other methods of mosquito control, there will be a reduction of 10 per cent. in the incidence of the disease the next year; and that if the cases which physicians treat are cured for ten years, malaria will become a negligible factor in any community. Bass has found from the study of many cases of malaria that 10 grains of quinine given at bedtime for sixty nights will completely rid the blood of the plasmodium in most cases.

Bass does not advise any relaxation of efforts in mosquito eradication, but he insists that, along with other methods of preventing malaria, every physician should treat his patients until they no longer are harbingers of the malaria organism. The public understands that it sometimes takes two years to cure syphilis completely, and every physician should consider it a duty to educate his patients whose blood carries the plasmodium of malaria that treatment should be kept up for two or three months before he can be regarded as free from this disease.

WARFARE AGAINST MALARIA

The malaria problem should be attacked from the front, from both flanks and also from the rear. Physicians constitute the infantry and they should attack the enemy's front with shells (capsules) filled with quinine, and the firing should be kept up until the hosts of malaria in the blood of their patients have been destroyed. Sanitary engineers may flank the enemy on the right by drainage of places in which mosquitoes breed, while the oiling brigades may control the advance on the left. The public health authorities should be the heavy artillery to throw over barrages of publicity campaigns to cut off the retreat of the hosts of this enemy to mankind that has slain its millions.

We have had practical demonstrations of the eradication of malaria in Havana and in the Canal Zone, and more recently in military camps and the extra-cantonment zones in a number of states. The work of Carter, von Ezdorf and White, of the Public Health Service, and Bass, Leathers and others have proved that it is a simple and comparatively inexpensive problem to rid any community of malaria.

The health authorities of every state in the South, where we must admit malaria is still prevalent in many localities, should awaken to the importance of this problem, and they should get the co-operation of the citizens of their states in this work until the South no longer suffers from the stigma of malaria.

MALARIA REDUCED TWO-THIRDS IN ITALY IN FIVE YEARS

Italy has reduced malaria two-thirds in five years even in the worst infected localities such as the historic Campagna, where millions have perished from malaria since the time of the Cæsars. The Italian Government went into the business of manufacturing quinine and gave it free to Italians who could not buy it. Public health authorities furnish vaccines for the prevention of smallpox and typhoid fever, and they give diphtheria antitoxin to indigent patients suffering from that disease. Why should they not purchase quinine at wholesale rates and give it to the people of any community who can not afford to buy the remedy with which to become disinfected of the plasmodium of malaria, and thus cease to be a menace to their families and neighbors?

Malaria is also an interstate problem, and the United States Public Health Service should be provided with adequate and

sufficient funds to help eradicate malaria from the Nation.

THE PHYSICIAN'S DUTY TO MALARIA PATIENTS

The fact that towns, cities, states, and the National Government have not done, or are not doing what they should in malaria prevention, does not excuse physicians from failure to do their duty to their patients and patrons. September and October are among the worst months for malaria, and if doctors will treat their patients until they are no longer gamete carriers, they can not infect mosquitoes next spring and summer, and they will thus reduce the prevalence of the disease in 1920.

There is no question that any physician who is alive to his opportunities by his individual efforts can play a big part in eradicating malaria from the community in which he resides. The prevention of disease is an obligation that no conscientious physician will shirk; and with the united effort of the medical profession of the South malaria in a few years will go as yellow fever has gone.

MEAT-BORNE INFECTIONS

Meat, of various kinds, is the article of food which is under greatest suspicion of causing food poisoning. It may become infected by disease of an animal before its death, or it may become contaminated after it is slaughtered by flies, dust, unclean containers, or soiled hands. Meat is unquestionably very frequently infected by careless handling. Many more cases of food poisoning would occur were it not for the fortunate fact that the heat used in cooking meat destroys most bacteria and the toxins that are elaborated by them.

Thoroughly "done" meat is less liable to carry infection than when it is cooked "rare." Some of the pathogenic organisms in infected meat may be in the centre of the roast, in meat pies, or other cooked meat dishes, and may not be destroyed by cooking. If such meat is kept for several days the bacteria in it propagate rapidly, and it becomes highly poisonous. Great care in handling meat, to prevent infection, is, therefore, necessary, because people will continue to eat food prepared in the way they like it best even at the risk of becoming ill.

The "stock pot" in which soups have been left for several days has been the source of a number of reported cases of food poisoning. Meat broth is a good culture medium for many pathogenic organisms and the "stock pot," if not properly cared for, may become contaminated, and in a day or two contain two millions of bacteria, with the toxins that have been generated by them, thus becoming highly poisonous as food.

DANGERS FROM EATING RAW MEAT

Food poisoning is apparently more frequent in countries where sausage, ham, and other meats are eaten raw. Bologna sausage and raw meat of various kinds are being consumed in increasing quantities in the United States. The latest fad is the raw beef sandwich. Our health authorities should inform the public of the danger of eating raw meats, and thus prevent many victims of food poisoning among those who are taking up raw meat fads, most of which originated in Germany. The heat from cooking, however, does not always destroy the toxins which cause food poisoning. The toxins in the meat of animals that are infected with the bacillus of Gaertner, which causes fever and diarrhea in cows and hogs, somewhat like "hog cholera," are not destroyed by heat.

The refrigeration of meat, as it is now practiced everywhere, since it inhibits bacterial growth, has no doubt decreased

very materially the number of cases of food poisoning. The cold storage of meat immediately after it has been slaughtered, and the general installation of refrigerators in hotels, cafes and homes, has no doubt prevented many cases of food infection. Judging from the information available, it appears that most cases of food poisoning have occurred in homes in which there were no refrigerators.

Methylguanidine, a ptomain which has been isolated from spoiled meat, was for some time thought to be the toxic principle in meat poisoning, but recent investigations prove that this ptomain may not be toxic to human beings. Spoiled meat which undergoes putrefaction from the ordinary saprophytic bacteria, except in the late stages of decay when no one would eat it on account of its taste, odor, and appearance, has been proven by experiments with animals not to be toxic. It is, therefore, probable that putrefying meat may be eaten without danger to human beings. It is only when meat is infected with pathogenic bacteria that it causes food poisoning. It should be remembered, however, that decaying meat may contain pathogenic bacteria in addition to the ordinary saprophytic organisms that cause putrefaction. If spoiled meat contains pathogenic organisms, it is likely to be highly toxic, because the longer pathogenic organisms are allowed to grow on meat, the greater the number of bacteria and the more virulent their toxin becomes.

PATHOGENIC BACTERIA IN MEAT-BORNE INFECTIONS

The pathogenic bacteria, whose habitat is the intestines of men and animals, have been proved to be the source of infection in most cases of meat poisoning. The Bacillus enteritidis discovered by Gaertner, in 1894, has been isolated from the meat which caused a number of outbreaks of food infection. It resembles the colon bacillus in appearance and has many of the same cultural characteristics. It is pathogenic to cows and hogs as well as to human beings, producing in them an enteritis with fever and other evidences of general toxemia. The enteritis in animals, due to the bacillus enteritidis, closely resembles typhoid fever in man, and the animal so infected may be a source of infection on account of its meat, which may contain the organism, and through its feces, which may contaminate meat by careless handling.

The paratyphoid group of bacteria is also regarded as one of the chief sources of meat infection. It is known that cows may become ill from paratyphoid infection; and it is probable that some of the cases of meat poisoning result from eating beef that is derived from animals infected with paratyphoid fever before they were slaughtered. Human paratyphoid carriers are a source of infection, and since meat is a good culture medium for the paratyphoid group of organisms, if several days have elapsed from the time that it is infected until it is eaten, it becomes highly toxic, causing a severe gastro-enteritis which may or may not be followed by a typical, or atypical, attack of typhoid or paratyphoid fever.

MEAT INSPECTION

Meat may be infected with the Bacillus enteritidis or the paratyphoid organism, or it may contain the toxins elaborated by these or other bacteria in such quantities that it is highly toxic without affecting its taste or appearance. The difficulties, therefore, in determining by ordinary inspection of meat as to whether or not it is toxic are apparent. The temperature should be taken of every animal that is to be slaughtered, and if there is fever it should not be killed without being kept under observation for several days. It surely seems that the efficiency of meat in-

spection can be increased very greatly if all the animals that are to be slaughtered for human consumption should be kept under observation for several days by a competent veterinarian before they are passed upon as fit for human food.

Jordan,* in illustrating the difficulty of determining infection of meat of animals after death, relates a case of a veterinary surgeon in Ghent who was so convinced that the meat which he had inspected, and which was thought to be the cause of an outbreak of food poisoning, was not contaminated, that he ate some of it. In a few hours he developed symptoms of severe infection, from which he died in five days. Autopsy proved that the paratyphoid bacillus caused the infection in his case.

Meat may carry the organisms and toxins of a number of specific diseases, i. e., tuberculosis, typhoid fever and botulism. It may also harbor and infect man with trichina (trichinella spinalis), tenia saginata (beef tape worm), echinococcus, and other animal parasites that are pathogenic to man.

THE BEST PHARMACEUTICAL CLEARING HOUSE

It is an accepted truth that a "clearing house" is a wholesome institution and that it can be rendered an agent of promotion and safety if utilized in a consistent manner. In fact, a correct synonym would be "information bureau," inasmuch as it sets forth the status of conditions in the fields wherein it may be employed.

The medical profession needs — and actually possesses—such an agency in this day when the practice of chicanery interferes with the good work performed by physicians. The annals of quackery and frauds perpetrated in the fields of medicine by charlatans, whether graduate physicians or mere laymen, are filled with the type of work, with the actual harm wrought and with the enormous material gains achieved by such leeches. The records are published and it simply remains for the right thinking physician to read them and inform himself accordingly; but many seem willing to accept half truths from those unqualified to express an opinion rather than study facts as found and reported by a scientific establishment.

Be that as it may, the Council on Pharmacy and Chemistry of the American Medical Association is carrying on a work of great usefulness to doctor and layman. Actuated by no selfish interest, condemned by designing sharks who wish to exploit their frauds, and ridiculed by the jealous manufacturer of pharmaceuticals, the Council pursues the even tenor of its labors, playing no favorites, exposing fraud wherever found and awaiting not the stamp of approval, of praise or of gratitude from any one. This "clearing house" is a medium through which physicians may learn the unvarnished, straightforward truths of proprietary products. The writer recalls that recently he was visited by a detail man from a well-known pharmaceutical house who represented a certain preparation as being the latest word along a special line. This representative had not taken his departure before the postman delivered a report from the Council on Pharmacy and Chemistry of the American Medical Association wherein that identical product was declared misbranded and unfit for acceptance. Under the caption "Propaganda for Reform" the Council submits a report in each issue of the *Journal of the American Medical Association.*

During the recent war the Government

*Jordan, Food Poisoning, p. 77, University of Chicago Press, 1917.

was presented with scores of formulæ, ranging from special pills to vaccines, calculated to be of inestimable value to the health and protection of the Army. All such spasms of genius were subjected to the baptism of a critical analysis by the Council on Pharmacy and Chemistry, and it is needless to estimate the money saved the Government, the crushed hopes of the crooks and the protection of the health and life of our boys.

A plea of ignorance of proprietary articles used does not excuse the physician, since it is his privilege to follow the course of instruction afforded by the Council and to appeal to this "clearing house" for information. It is to be hoped that more than a majority of physicians realize that "accepted by the Council on Pharmacy and Chemistry" is as safe a criterion to follow as we possess at the present time.

THE NEW ORLEANS MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

That New Orleans is a great city and a medical centre of the first importance, is shown by the fact that it has been selected as the meeting place for two great National medical associations during the next year, i. e., the American Public Health Association, which meets in October, and the American Medical Association, in 1920. Both these organizations have met in New Orleans before, and its members know that genuine Southern hospitality is found in its most delightful form in the Crescent City. They also know that few cities in the country have better hotel facilities, and that none can compare with New Orleans in the variety and deliciousness of the viands that have made certain cafes and hotels as famous as the beverage of by-gone days that placed Milwaukee on the map.

Visitors to New Orleans may miss certain delicacies like the "gin fizz" with a silver lining and the "sazarac cocktail" of a golden hue that have "driven dull care away" from thirsty mortals in the dim ages that have passed; but New Orleans has the purest of drinking water, the sparkling beverage that "cheers without inebriation," and the members of the two great National Medical associations who journey Southward will find that the pleasure and success of their meetings will not be marred by the benevolent, or the manevolent, legislation that deprives them of some of the things which they have enjoyed on previous visits to the great city at the mouth of the "Father of Waters."

The meeting of the American Public Health Association is one in which Southern physicians should be particularly interested, because the medical men of no other section of the country are more interested in the prevention of disease. Southern men have also done their share in workng out some of the great problems in disease-prevention. It was a Southern physician — Josiah Nott, of Mobile, Alabama—who, in 1848, first called attention to the mosquito as the probable bearer of the fevers, malaria, and yellow fever, then prevalent in the South; Carter, a Virginian, of the United States Public Health Service, later made observations that aided Walter Reed, another Virginian, of the Medical Corps of the United States Army, in his epoch-making researches, which proved that yellow fever is transmitted by the anopheles mosquito; and it was Gorgas, an Alabamian, who made the practical application of Reed's discovery that has rendered it impossible for the dreaded "yellow jack" ever again to invade the Gulf and Atlantic ports of the United States.

The members of the American Public

Health Association will be interested in the great medical school and in the wonderful hospitals that provide a wealth of clinical material for those who have the privilege of studying medicine in the under-graduate and post-graduate medical schools in New Orleans. They will be particularly interested in the School of Tropical Medicine of Tulane University, in whose laboratories researches of great importance have been made, notably the cultivation of the malaria organism by Bass. The improvements in the sanitation of New Orleans will amaze those who have visited that city in previous years; and a study of the Louisiana public health system, which Dr. Oscar Dowling has developed, will also be worth the while of the public health officials who visit New Orleans during the meeting of the American Public Health Association.

Every medical man should be interested in preventive medicine and the program as announced by the American Public Health Association should attract the physicians of the South to the New Orleans meeting, October 27-30.

Special Article

ASHEVILLE NEXT NOVEMBER*

Last November the annual meeting of the Southern Medical Association was to have been held in Asheville, the "Convention City of the South." By reason of the epidemic then ravaging the country, it was deemed imperative to omit that meeting. Then the dark cloud of war hung heavily upon us to add its ever-present anxiety and horror and sacrifice and sorrow to the tragedy of the ubiquitous epidemic. But now brighter days are ahead. The war is won; the epidemic will not be repeated, we believe, and Asheville invites you to come to her for your thirteenth annual meeting. This is not the place, nor have we the space, in which to recite the part played in the winning of the war by the members of our Society. Suffice it, that seeing our duty we did it and did it nobly well.

Many whose fortune and duty it was to remain at home, as well as hundreds in Service, were disappointed at the postponement of the meeting last fall—your disappointment can only be measured by the like feeling of all who wanted you to come — all Asheville — and also by the warmth of welcome awaiting you this fall. To have been twice chosen as your meeting place, albeit one meeting was not held because of the epidemic, is an honor Asheville will strive to merit.

Situated in the Blue Ridge Plateau, 2,250 feet above the sea level, Asheville affords scenery and climate of which she can and does speak with pride. Often called the "Playground of the South," she welcomes within her gates each year more than 200,000 visitors. For those who come, go away to return.

The Southern Railway, one of the main trunk lines of the South, maintains admirable trains and schedules so that any one within the boundaries of the territory of the Southern Medical Association can reach Asheville without difficulty. Special round trip rates in effect from all parts of the South.

As a tourist's Mecca, Asheville points with pride to her hotel facilities, perhaps much larger than those of any city of her size South, East or West. Situated upon Battery Park Hill, in the heart of the city and only five minutes' walk from the Section meeting halls, is the famous Battery Park Hotel.

Nestling at the foot of Sunset Mountain, with the golf course of the Asheville Country Club for foreground, is the massive Grove Park Inn, "the finest tourist hotel in the world," overlooking the western tier of mountains, whose beauty is sung in song and story. The Inn is easy of approach by auto or the city car lines.

*From the Sub-Committee on Publicity of the General Committee from the Asheville profession.

Somewhat nearer in the city is the Manor, that unique and charming hostelry — an English inn in America— of which many members of the Southern Medical Association have lively and pleasant memories. This may be reached by the city car lines and is less than ten minutes' ride by taxi from the center of the city.

Margo Terrace, of lesser size than the above, is situated below the crest of the Battery Park Hill and offers the advantages of an elegant family hotel close to the heart of the city, and yet away from its traffic centers.

The Langren, Swannanoa-Berkley and Glen Rock are the leading commercial hotels of the city and their popularity is well attested by traveling men from all quarters of the country.

Of lesser size but open the entire year are the Knickerbocker on College Street, about six minutes' walk from the meeting places, and Ravenscroft, just half this distance from them, and the Cherokee Inn, ten minutes' walk from the center of the meetings. Besides these there are other hotels, but not so large as those mentioned. Asheville is prodigally supplied with boarding houses and many private homes where room and board can be had at reasonable rates. The restaurant facilities are abundant to meet all demands of the great throngs of tourists and convention delegates who come to Asheville in great numbers.

The Kenilworth Inn, built upon the site of its once famous predecessor, when only 60 % completed was taken over by the Government for use as General Hospital No. 12. At the present writing it is still used as such and has become the headquarters for the Empyema Commission's investigation and study. Here have been treated numerous overseas men and nurses, as well as many cases of empyema, the aftermath of last year's terrific influenza epidemic. The hospital has been equipped and manned as only Uncle Samuel can do when at his very best, and the work here has been of an extremely high order. Naturally this magnificent building, originally intended for a very modern, sumptuous tourist hotel, can not be available as a hotel should Hospital No. 12 be evacuated before the coming meeting, although no definite date has been published for its discontinuance in its present capacity. This will be a bitter disappointment to many who had looked forward with pleasure to a stay in this magnificent hotel situated in Kenilworth Park and overlooking the broad acres of the Vanderbilt estate with its famed mansion. Those who attend regularly the meetings of the Southern Medical Association need no injunction to seek their hotel reservations early. If any are disappointed in securing what they need, it will be a pleasure to the Hotel Committee in Asheville to secure what is wanted. This Committee, as well as the members of the other various committees, is appended below. Their services are at your disposal. Just communicate your wishes and pleasures and they will receive every attention.

Attesting to the excellence of the climate of western North Carolina, the Government established, in addition to General Hospital No. 12 at Kenilworth, Hospital No. 19 at Oteen, six miles east of Asheville. This is one of the largest Government hospitals for the treatment of tuberculous soldiers. The Hospital has over 50 wards and 70 buildings, a capacity of about 1,200 patients; a personnel of 500 enlisted men; a corps of 45 medical and 20 administrative officers, and 120 nurses and 40 nurses' aids. It is located on a tract of 120 acres and is reached from Asheville by a magnificent concrete and asphalt highway. Springing up, as it were, almost overnight, this magnificent institution, which plays such an important part in our present plans of reconstruction, sending back to health and useful activities so many of our bravest and best

young men, is but another witness to the wonderful things we did in the recent war. Oteen is part of the U. S. Army's permanent establishment, a wise provision reflecting the excellent judgment displayed in placing this hospital here and a tribute to the success it has attained. The relations existing between the members of the local profession and the commanding and medical officers of the Government hospitals always have been so cordial and pleasant that it is an added pleasure to send you the greetings and invitation to visit these institutions extended you by their commanding officers. There is much of interest for the medical men to see and hear.

The slogan is *"On to Asheville Next November!"* Make the thirteenth annual meeting of the Southern Medical Association the best and the largest meeting in our history.

The committees are as follows:

Chairman of the Whole: Dr. H. H. Briggs.

Reception: Drs. W. P. Herbert, Chairman; W. L. Dunn, and C. L. Minor.

Finance: Drs. J. W. Huston, Chairman; Eugene R. Cocke, Dan Sevier, and C. P. Ambler.

Exhibits: Drs. A. W. Calloway, Chairman; O. F. Eckel, and Jere E. Cocke.

Section Meeting Places: Drs. F. W. Griffith, Chairman; C. C. Orr, L. W. Elias, and W. J. Hunnicut.

Hotels: Drs. M. H. Fletcher, Chairman; A. T. Pritchard, R. R. Smith, R. C. Scott, and W. L. Grantham.

Entertainment: Drs. C. V. Reynolds, Chairman; M. L. Stevens, and Joe Adams.

Publicity: Drs. C. H. Cocke, Chairman; C. D. W. Colby, and P. H. Ringer.

Book Reviews

The Peritoneum. Structure and Function in Relation to the Principles of Abdominal Surgery. By Arthur E. Hertzler, M.D., F.A.C.S., Surgeon to the Halstead Hospital, Halstead, Kansas; Associate Professor of Surgery, University of Kansas; Formerly Professor of Pathology, Experimental Surgery, and Gynecology, University Medical College, Kansas City, Mo. In two volumes of 870 pages profusely illustrated, some in colors. St. Louis: C. V. Mosby Co., 1919.

This splendid monograph in two volumes represents a research and study covering a period, according to the author, of twenty-five years. It not only deals with his investigations and views, but includes an exhaustive review of the literature on the subject.

The book considers the anatomy, physiology, pathology, and practical surgical applications of the principles involved. Volume I is largely theoretical, whereas Volume II takes up the more practical phases of the subject.

The discussion is not confined to the peritoneum alone but deals with all the abdominal viscera, or , in other words, all the organs in relation to which the peritoneum comes.

It is a most scholarly piece of work involving exceedingly careful and painstaking investigations, and offers a brilliant example of the truly scientific trend of modern surgery. The subject matter is well arranged, and the books deserve a hearty reception at the hands of the surgical world.

Southern Medical News

ALABAMA

Physicians of Troy have increased their fees an additional dollar. This has been done following the lead of physicians in other places and necessitated by the high cost of living.

Dr. S. W. Welch, State Health Officer, approves the plan of Dr. A. A. Kirk, Tuscaloosa, City and County Health Officer, to go to every school in the County for the purpose of examining the children for all physical defects. If the plan is adopted by the county school board, Dr. Kirk will keep a record of the grade, age, weight, height, teeth, tonsils, mouth, health, eyes, eyelids and ears.

ARKANSAS

Dr. C. W. Garrison, State Health Officer, and members of the State Board of Health recently made a tour of the western part of the State to study health conditions.

Dr. J. S. Wolferman, after service in the Army for more than two years, has resumed his practice at Fort Smith.

Dr. A. F. Barr, formerly of Weldon, has removed to Newport.

Dr. John Thames, Little Rock, has taken charge of the city's health department. He has suggested the appointment of a permanent head nurse for the City Hospital, an experienced sanitary inspector, with three assistants, and a graduate veterinarian for the inspection of milk, meat and food.

Dr. A. C. Shipp, President of the State Public Health Association, and Director of the Tuberculosis Clinic of the Pulaski County Public Health Association, stated recently that doctors everywhere are aware of the greatly increased number of cases of tuberculosis since the influenza epidemic. He states this does not mean there is more tuberculosis, but there has been a "flare-up" of hidden conditions. He urges those who have had influenza to have special chest examinations; and also that every one interested in the welfare of the State should join the campaign to prevent a recurrence of influenza.

Deaths

Dr. L. E. Willis, Newport, aged 57, died in a St. Louis hospital in August from paralysis of the brain.

FLORIDA

At a meeting of the State Board of Health recently many changes were made. The Child Welfare Bureau and Venereal Clinic Headquarters has been moved from Tampa to Jacksonville, and the Orthopedic Department for the care of crippled children from Ocala to Jacksonville. Free clinics were established in all labor centers for the benefit of labor and employer in the treatment of venereal diseases. The Bacteriologist at Pensacola was placed on a full-time basis. It is also planned to establish a tuberculosis colony and an appropriation of $1,000 per month for initial expenses was made. When this colony is established the services of the five tuberculosis nurses will be dispensed with.

Since the Duval County Tuberculosis and Baby Clinics were established in May, 222 adult patients have been examined and 156 of these declared tubercular by Dr. R. H. McGinnis, in charge of the clinic.

Dr. L. B. Dickerson has recently been discharged from the Army service and will resume his practice at Clearwater.

GEORGIA

Dr. E. D. Highsmith, recently discharged from the Army, has resumed his practice in Atlanta.

The Eighth District Medical Society held its annual meeting at Watkinsville the second week in August.

Dr. E. C. Davis, Atlanta, formerly Lieutenant-Colonel, Medical Corps, U. S. Army, and Medical Director of the Emory Base Hospital Unit, recently gave a barbecue at his farm near Atlanta to the physicians and nurses of the Unit.

Deaths

Dr. J. S. Felman, Douglasville, died of heart disease in August.

Dr. J. D. Graham, Dalton, aged 84, died at a hospital in Atlanta some time in August.

KENTUCKY

The State Medical Association will hold its annual meeting in Ashland September 23, 24, 25.

All equipment of the State Board of Health has been removed from Bowling Green to Louisville.

Dr. H. G. Claypool has recently been discharged from the Service and resumed his practice at Mt. Olivet.

The report of the City Health Department of Louisville for the fiscal year ending August 31 shows that since September, 1918, the department destroyed as unfit for human consumption 167 tons of vegetables, thirteen tons of meats and six tons of fruits.

Drs. L. P. Moore, Greenville, J. D. Cundiff, Drakesboro, and F. K. Foley, Central City, have been appointed members of the Board of Health of Muhlenberg County.

At a meeting of the Kentucky Valley Medical Association held at Torrent, Dr. George F. Hoyle, Winchester, was made President; Dr. C. B. Marks, Lexington, Vice-President; and Dr. Wilgas Bach, Jackson, Secretary. Winchester was chosen for the next annual meeting.

Drs. A. M. Gross and R. L. Collins have opened a new hospital at Hazard.

Deaths

Dr. Martin F. Coomes, Bardstown, aged 72, died recently following an operation.

LOUISIANA

Sixty-seven out of seventy-one physicians successfully passed the State examination before the Louisiana State Board of Medical Examiners last month.

Dr. Oscar Dowling, New Orleans, State Health Officer, has appealed to the Governor for financial aid in continuing the fight on venereal disease. It is understood that the Government may abandon this fight.

Deaths

Dr. Edward L. McGehee, Hammond, died at his home on August 13, after an illness of several months.

MISSOURI

The Association of Military Surgeons will meet in St. Louis October 13. This organization was formed about eighteen years ago. Something like 32,000 doctors who gave their services to the Government in the late war have made themselves eligible for membership.

The State Board of Health announces that there were 341 homicides in Missouri in 1918 caused by firearms, exclusive of seventy-five killed by accidental shooting.

One hundred and forty-six persons died in St. Louis during the week ending August 30, according to statistics prepared by the Health Department.

Dr. R. E. Egan, a woman physician of Waverly, Kans., has been appointed by the hospital board of Kansas City to succeed Mrs. Mary Tucker, resigned, as Superintendent of Nurses at the General Hospital.

The Missouri State Medical Association is planning a series of post-graduate courses, aimed at increasing the working efficiency of the general medical practitioner, to be held in every section of the State during the coming fall and winter, in which trained specialists will give out information to their fellow craftsmen in a general campaign to raise medical standards.

There is a campaign on in Kansas City to prevent a recurrence of the influenza epidemic of last year. Dr. E. H. Bullock, Health Director, has ordered an inspection of all rooming houses. Regulations governing their management have also been issued by the health board.

After service of fourteen months in the Army, Dr. Edwin F. James, of Springfield, has resumed his practice.

Deaths

Dr. Otto Wall, Jr., St. Louis, aged 46, died recently at the Barnes Hospital of heart trouble

(Continued on page 30)

"WE MADE GOOD"

could justly be emblazoned on the escutcheon of the American Medical Profession; for that pithy phrase pointedly epitomizes the record-breaking achievements of the medical heroes who went "over there" as well as those who did equally good work in our camps here; and of those other brave medical men and women who carried the heavy burden in private practice and in our hospitals during the war years.

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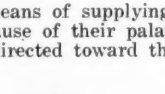
~~A TRUE~~  ~~LINE~~

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(Continued from page 586)

which originated with an attack of influenza. He had been ill several months.

NORTH CAROLINA

Efforts looking to the erection of a municipally-owned hospital for Gastonia and Gaston County are being made following the almost unanimous indorsement of the movement by the medical profession of the city at the August meeting of the Gaston County Medical Society held the second week in August.

OKLAHOMA

In the fight for the suppression of venereal diseases in Oklahoma, the U. S. Public Health Service, under the direction of Dr. J. C. Mahr, is conducting a campaign of education that is worthy of the co-operation of the public.

Dr. E. N. Poer, formerly of Mangum, has removed his offices to Hobart.

Free typhoid vaccination is being given in Okfuskee County.

Dr. Walter R. Hardy was appointed by Governor Robertson delegate to the twenty-fifth annual meeting of the American Hospital Association, which convened in Cincinnati, Ohio, early in September.

A joint session of National Indian representatives will be held in connection with the State Health Conference in Oklahoma City September

(Continued on page 32)

Dr. William Krauss Dr. C. R. Stingily

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Feces, for parasites or ova	2.00	Spinal Wassermann	5.00
Wassermann test	5.00	Colloid Gold	5.00
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(Continued from page 30)

24. The special Indian conference will take up matters relative to Indian health in the State and Nation.

Dr. M. H. Stines, who has recently been discharged from the Army at Camp Jackson, has located in Ardmore to take up his practice.

Dr. Guy P. McNaughton, Miami, City Health Officer, has been appointed County Health Officer by the Board of County Commissioners.

Oklahoma's health department, under Commissioner Arthur R. Lewis, has just achieved a record in the campaign for typhoid immunization. More persons were inoculated in Oklahoma in one season than in any other state in the Union except North Carolina, which has had the work under way several years. Free vaccine was offered during July and August to those who couldn't afford to pay for it. Forty-thousand persons accepted the State's offer and twice as many were immunized by their family physicians, making a total of 120,000 vaccinated in all. Inmates of all State prisons, asylums and hospitals were among those inoculated.

SOUTH CAROLINA

Dr. James S. Fouche, formerly of Ninety-Six, has been discharged from the Army service and has located in Columbia to take up the practice of medicine.

On account of an outbreak of diphtheria in Lexington County, Dr. James A. Hayne, State

(Continued on page 34)

Laboratories of Drs. Bunce and Landham

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Director Pathological Dept.

Jackson W. Landham, M.D.
Director X-Ray Dept.

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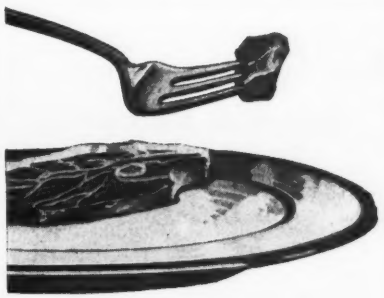

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(Continued from page 32)

Health Officer, has directed Dr. C. B. Kneece, County Health Officer of Lexington, to put quarantine regulations into effect and see to the placarding of homes where cases have developed.

Dr. James A. Hayne, State Health Officer, recently stated that statistics from every county in the State showed a decline this year in the number of cases of typhoid fever as compared with previous years.

Dr. Humphrey D. Wolfe, formerly of Baltimore, has located in Greenville, and is in charge of the x-ray department for Dr. John W. Parker.

TENNESSEE

The Chattanooga Academy of Medicine and the Hamilton County Medical Association recently gave a Dutch supper complimentary to the members who were in service during the war, to those who went overseas as well as those who did service on this side.

The health plan for Chattanooga as worked out by the Health Director, Dr. Stanton Barrett, has been approved by the Surgeon-General of the United States Public Health Service.

Deaths

Dr. R. H. Allen, West Nashville, died August 6 at a local infirmary.

(Continued on page 36)

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Dr. R. B. H. Gradwohl, Director

(Continued from page 34)

TEXAS

The problem of caring for migratory tuberculosis cases is one of the most perplexing situations now confronting the Texas Public Health Association, according to George F. Granger, Field Secretary of that organization. The Public Health Association is attempting to aid tubercular patients by providing homes for them in towns located in the high altitudes of west and southwest Texas.

Dr. M. E. Parker has resigned as Secretary of the State Board of Health and Registrar of Vital Statistics and will be connected with the United States Public Health Service at Laredo.

Baylor College of Medicine, Dallas, will open its fall session September 29 with clinical facilities second to none in the Southwest, according to Dr. Edward H. Cary, Dean of the College. In addition to the Texas Baptist Memorial Sanitarium, the College has made arrangements for the use of Parkland and Woodlawn Hospitals for the teaching of clinical medicine. Dr. Cary expects an attendance of about 400 students this year.

Dr. Aleck Harrison, Director of Rural Sanitation Work in Navarro County, has been appointed State Director of the Bureau of Rural Sanitation to succeed Dr. P. W. Covington, who has been transferred to Fort Worth.

(Continued on page 39)

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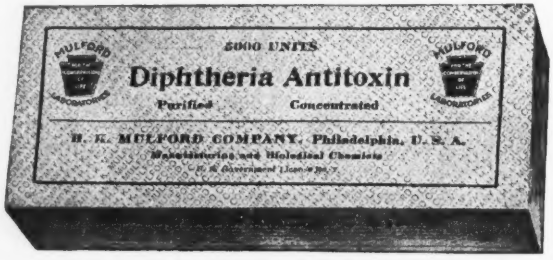
on
Mulford Diphtheria Antitoxin



Mulford Purified and Concentrated Diphtheria Antitoxin, each dose in aseptic glass syringe, ready for immediate use, is now sold at the following prices:

1000 units	$0.75
3000 units	2.00
5000 units	3.00
10,000 units	5.00

The first Diphtheria Antitoxin made commercially in this country bore the Mulford label and the rich experience gained in 25 years of antitoxin production is reflected in the superior quality of the Mulford antitoxin of today.

Potency—high
Total solids—low
Density—same as the blood
Dosage and sterility guaranteed

The potency and sterility are assured by duplicate sets of tests, conducted separately and independently, then compared and passed on by a third expert.

To insure receiving this highest grade antitoxin at the new prices, always specify **"Mulford"** on your orders and prescriptions.

The best druggist in your town or district is usually a Mulford distributor.

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H. K. MULFORD COMPANY

Manufacturing and Biological Chemists

Philadelphia, U. S. A.

40115

(Continued from page 36)

Tarrant County is the first county to accept the benefits under the new arrangement made by the State Board of Health for a county health organization with a physician devoting his whole time to rural health and sanitation.

A case of sleeping sickness has been reported at Rockdale. State Health Officer, Dr. C. W. Goddard, states that this is the fifteenth case in Texas since the disease appeared.

Dr. O. W. Wilson, formerly of Newcastle, has located in Wichita Falls, following his discharge from the Service.

Deaths

Dr. C. L. Gregory, Greenville, died suddenly August 12.

Dr. R. C. Dausby, aged 73, died at a hospital in San Antonio early in August after a brief illness.

VIRGINIA

Dr. W. Brownley Foster, Roanoke, head of the City Health Department, urges the continuation of the services of the nurse engaged about a year ago to look after the babies of Roanoke. He states that since he began tabulating more than a thousand babies less than a year old have died, and that a good nurse would have helped toward lowering the death rate.

A clinic for typhoid inoculation has been opened in Norfolk. It will be open on Tuesdays, Thursdays and Saturdays from 4 p. m. to 7 p. m. under the direction of Dr. William F. Reasner, County Health Officer.

Deaths

Dr. Mott Robertson, aged 61, died at his home at Spout Springs early in August after a long illness of heart trouble.

WEST VIRGINIA

Dr. H. P. Salome, formerly of Calas, has removed to Warwood to take up his practice.

Dr. H. M. Keatley, formerly of Huntington, has located in Buckhannon and will be associated with Dr. J. A. Rusmisell.

Deaths

Dr. Robert Laughlin, aged 67, died at his home in Wheeling August 24 of cerebral hemorrhage.

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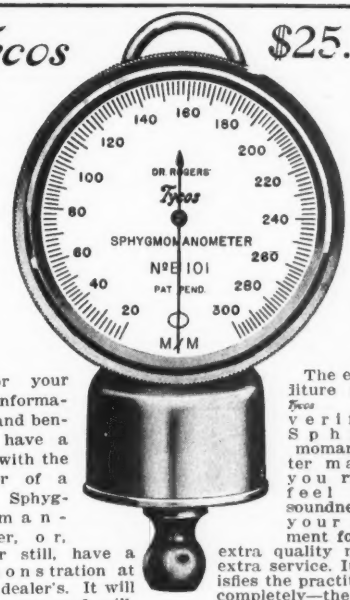
Tycos $25.00



For your own information and benefit, have a talk with the owner of a Tycos Sphygmomanometer, or, better still, have a demonstration at your dealer's. It will gain your good will, as will the daily use hold it.

The expenditure for a Tycos Self-verifying Sphygmomanometer makes you rightly feel the soundness of your judgment for the extra quality means extra service. It satisfies the practitioner completely—the reason it holds the unchanging loyalty of users.

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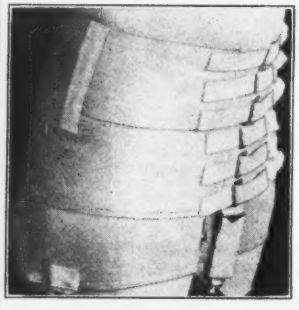

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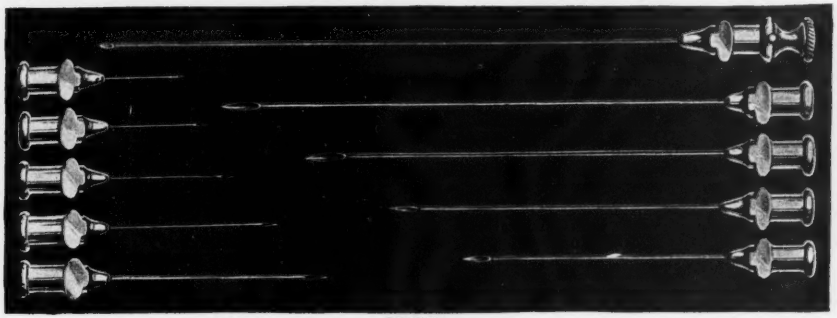

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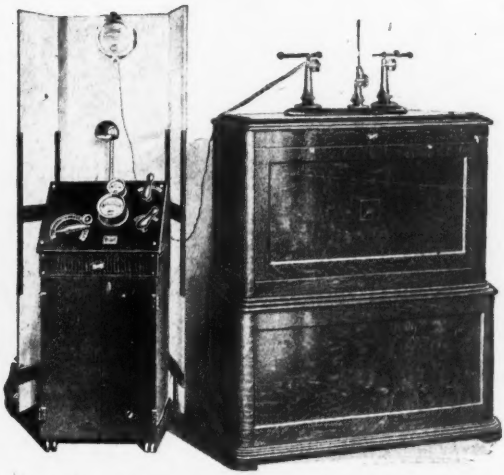

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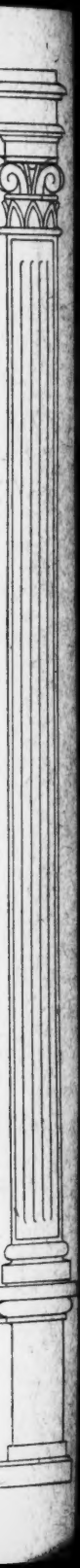
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